

THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Applicant(s): Dupont et al.
Appl. No.: 09/833,314
Conf. No.: 4353
Filed: April 10, 2001
Title: CANNED FILLED PET FOOD
Art Unit: 1761
Examiner: Steven L. Weinstein
Docket No.: 115808-239

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

APPELLANTS' APPEAL BRIEF

Sir:

Appellants submit this Appeal Brief in support of the Notice of Appeal filed on December 11, 2006. This Appeal is taken from the Final Rejection in the Office Action dated September 20, 2006.

I. REAL PARTY IN INTEREST

The real party in interest for the above-identified patent application on Appeal is Nestec, S.A. by virtue of an Assignment dated July 5, 2001 and recorded at reel 011952, frame 0470 in the United States Patent and Trademark Office.

II. RELATED APPEALS AND INTERFERENCES

Appellants previously submitted an Appeal Brief in support of the Notice of Appeal filed on July 8, 2004. This former Appeal was taken from the Final Rejection in the Office Action dated February 9, 2004 and the Advisory Action dated June 8, 2004. The Patent Office sent a non-final Office Action dated January 4, 2005 that withdrew the Final Rejection dated February 9, 2004. Appellants submitted a Response to the non-final Office Action on April 4, 2005. The Patent Office mailed a Final Rejection in the Office Action dated July 13, 2005. Appellants submitted an Appeal Brief in support of the Notice of Appeal filed on October 13, 2005. This former Appeal was taken from the Final Rejection in the Office Action dated July 13, 2005. The Patent Office sent a non-final Office Action dated March 30, 2006 that withdrew the Final Rejection dated July 13, 2005. Appellants submitted a Response to the non-final Office Action on June 28, 2006. The Patent Office mailed a Final Rejection in the final Office Action dated September 20, 2006. This current Appeal is taken from the Final Rejection in the final Office Action dated September 20, 2006.

III. STATUS OF CLAIMS

Claims 1-17 are pending in the above-identified patent application. Claims 1-17 stand rejected. Therefore, Claims 1-17 are being appealed in this Brief. A copy of the appealed claims is included in the Claims Appendix.

IV. STATUS OF AMENDMENTS

A Final Office Action was mailed on September 20, 2006. In the Final Office Action, the Examiner maintained the obviousness rejections. Appellants filed a Notice of Appeal on December 11, 2006 in reply to the Final Office Action. A copy of the Final Office Action dated September 20, 2006 ("Final Office Action") is attached as Exhibit A in the Evidence Appendix.

V. SUMMARY OF CLAIMED SUBJECT MATTER

A summary of the invention by way of reference to the drawings and specification for each of the independent and dependent claims is provided as follows:

Independent Claim 1 is directed to a canned pet food product having an upper end and a lower end, the product comprising: an outer, tubular phase which is substantially solid and which extends from the lower end to the upper end and which includes an edible source of carbohydrate and proteins; and a substantially cylindrical inner phase which extends from the lower end to the upper end of the outer phase and including an edible source of carbohydrate and protein; the inner phase having an appearance different from the outer phase and extending within the outer phase (page 2, lines 7-14 and Figures 3-4).

Independent Claim 2 is directed to a canned pet food product having an upper end and a lower end, the product comprising: an outer, tubular phase which is substantially solid and which extends from the lower end to the upper end and which includes an edible source of carbohydrate and protein; and a substantially cylindrical inner phase which extends from the lower end to the upper end of the outer phase and including an edible source of carbohydrate and protein; the inner phase having an appearance different from the outer phase; the product obtainable by a process comprising: filling the outer phase into a can; forming a bore into the outer phase for providing a tubular outer phase; filling the inner phase into the bore of the tubular outer phase; sealing the can; and retorting the sealed can (page 2, lines 7-4 and page 2, line 28 to page 3, line 7).

Independent Claim 6 is directed to a canned pet food product having an upper end and a lower end, the product comprising: an outer, tubular phase which extends from the lower end to the upper end and which includes a substantially solid, thermally gelled mixture of carbohydrate and protein; and a substantially cylindrical inner phase which extends from the lower end to the upper end of the outer phase and which is in the form of chunks of a formulated emulsion product in a gravy; the inner phase having an appearance different from the outer phase and extending within the outer phase (page 2, lines 7-14 and page 2, lines 20-24 and Figures 3-4).

Independent Claim 9 is directed to a process for producing a canned pet food product, the process comprising: filling into a can an outer phase including an edible source of carbohydrate and protein; forming a bore into the outer phase for providing a tubular outer phase; filling a

substantially cylindrical inner phase from a lower end to an upper end of the outer phase including an edible source of carbohydrate and protein into the bore of the tubular outer phase, the inner phase having an appearance different from the outer phase; sealing the can; and retorting the sealed can (page 2, line 28 to page 3, line 7).

Although specification citations are given in accordance with C.F.R. 1.192(c), these reference numerals and citations are merely examples of where support may be found in the specification for the terms used in this section of the Brief. There is no intention to suggest in any way that the terms of the claims are limited to the examples in the specification. As demonstrated by the references numerals and citations, the claims are fully supported by the specification as required by law. However, it is improper under the law to read limitations from the specification into the claims. Pointing out specification support for the claim terminology as is done here to comply with rule 1.192(c) does not in any way limit the scope of the claims to those examples from which they find support. Nor does this exercise provide a mechanism for circumventing the law precluding reading limitations into the claims from the specification. In short, the references numerals and specification citations are not to be construed as claim limitations or in any way used to limit the scope of the claims.

VI. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

1. Claims 1-17 are rejected under 35 U.S.C. § 103(a) over EP 769252 to Ohba ("Ohba") in view of GB 341,760 to Vickers ("Vickers") and WO 98/05219 to May ("May"), or vice versa, in further view of GB 1327351 to Quaker Oats ("Quaker Oats") and US Patent No. 3,738,847 to Bechtel ("Bechtel"), further in view of US Patent No. 2,421,199 to Gutmann ("Gutmann"), GB 2,194,125 to Froebel ("Froebel"), US Patent No. 2,937,095 to Zitin ("Zitin"), US Patent No. 3,385,712 to Dodge ("Dodge") and further in view of, GB 1486634 to Henkel ("Henkel"), WO 94/26606 to Mandanas ("Mandanas"), U.S. Patent No. 2,344,901 to Routh ("Routh"), GB 1583351 to McMahon ("McMahon"), EP 675046 to Errass ("Errass"), Australia 50797/96 to Hillebrand ("Hillebrand"), JP 59-31677 to QP Corp. I ("QP Corp. I") and JP 61-100174 to QP Corp. II ("QP Corp. II") further in view of applicants admission of the prior art, further in view of U.S. Patent No. 5,518,746 to Diaz ("Diaz"), JP 62-104566 to Hoashi ("Hoashi"), JP 59-159758 to Honma et al. ("Honma") and JP 57-12987 to Sonoya ("Sonoya"). Copies of each cited reference are attached herewith in the Evidence Appendix.

VII. ARGUMENT

A. LEGAL STANDARDS

Obviousness under 35 U.S.C. §103

The Federal Circuit has held that the legal determination of an obviousness rejection under 35 U.S.C. §103 is:

whether the claimed invention as a whole would have been obvious to a person of ordinary skill in the art at the time the invention was made...The foundational facts for the *prima facie* case of obviousness are: (1) the scope and content of the prior art; (2) the difference between the prior art and the claimed invention; and (3) the level of ordinary skill in the art...Moreover, objective indicia such as commercial success and long felt need are relevant to the determination of obviousness...Thus, each obviousness determination rests on its own facts.

In re Mayne, 41 U.S.P.Q. 2d 1451, 1453 (Fed. Cir. 1997).

In making this determination, the Patent Office has the initial burden of proving a *prima facie* case of obviousness. *In re Rijckaert*, 9 F.3d 1531, 1532; 28 U.S.P.Q.2d 1955, 1956 (Fed. Cir. 1993). This burden may only be overcome “by showing some objective teaching in the prior art or that knowledge generally available to one of ordinary skill in the art would lead that individual to combine the relevant teachings.” *In re Fine*, 837 F.2d 1071, 1074; 5 U.S.P.Q.2d 1596, 1598 (Fed. Cir. 1988). “If the examination at the initial stage does not produce a *prima facie* case of unpatentability, then without more the applicant is entitled to grant of the patent.” *In re Oetiker*, 24 U.S.P.Q.2d 1443, 1444 (Fed. Cir. 1992).

To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the reference or references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. *In re Fine*, 837 F.2d 1071; 5 U.S.P.Q.2d 1596. Second, there must be a reasonable expectation of success. *In re Merck & Co., Inc.*, 800 F.2d 1091; 231 U.S.P.Q. 375 (Fed. Cir. 1986). Finally, all of the claim limitations must be taught or suggested by the prior art. *In re Royka*, 490 F.2d 981; 180 U.S.P.Q. 580 (CCPA 1974).

Further, the Federal Circuit has held that it is “impermissible to use the claimed invention as an instruction manual or ‘template’ to piece together the teachings of the prior art so that the

claimed invention is rendered obvious.” *In re Fritch*, 23 U.S.P.Q.2d 1780, 1784 (Fed. Cir. 1992). “One cannot use hindsight reconstruction to pick and choose among isolated disclosures in the prior art to deprecate the claimed invention.” *In re Fine*, 837 F.2d 1071.

Moreover, the Federal Circuit has held that “obvious to try” is not the proper standard under 35 U.S.C. §103. *Ex parte Goldgaber*, 41 U.S.P.Q.2d 1172, 1177 (Fed. Cir. 1996). “An-obvious-to-try situation exists when a general disclosure may pique the scientist curiosity, such that further investigation might be done as a result of the disclosure, but the disclosure itself does not contain a sufficient teaching of how to obtain the desired result, or that the claimed result would be obtained if certain directions were pursued.” *In re Eli Lilly & Co.*, 14 U.S.P.Q.2d 1741, 1743 (Fed. Cir. 1990).

Of course, references must be considered as a whole and those portions teaching against or away from the claimed invention must be considered. *Bausch & Lomb, Inc. v. Barnes-Hind/Hydrocurve Inc.*, 796 F.2d 443 (Fed. Cir. 1986). “A prior art reference may be considered to teach away when a person of ordinary skill, upon reading the reference would be discouraged from following the path set out in the reference, or would be led in a direction divergent from the path that was taken by the Applicant.” *Monarch Knitting Machinery Corp. v. Fukuhara Industrial Trading Co., Ltd.*, 139 F.3d 1009 (Fed. Cir. 1998) (quoting *In re Gurley*, 27 F.3d 551 (Fed. Cir. 1994)).

Finally, the Court of Customs and Patent Appeals found that if the proposed modification or combination of the prior art would change the principle of operation of the prior art invention being modified, then the teachings of the references are not sufficient to render the claims at issue *prima facie* obvious. *In re Ratti*, 270 F.2d 810; 123 U.S.P.Q. 349 (CCPA 1959).

B. THE CLAIMED INVENTION

Of the pending claims, Claims 1, 2, 6 and 9 are the sole independent claims. Claims 1, 2 and 6 each relate to a canned pet food product that has an upper end and a lower end. Claim 9 relates to a process for producing a canned pet food product. The canned pet food product defined in Claim 1 includes an outer tubular phase which is substantially solid and which extends from the lower end to the upper end and includes an edible source of carbohydrate and protein. The food product also has a substantially cylindrical inner phase that extends from the lower end

to the upper end of the outer phase and includes an edible source of carbohydrate and protein. The inner phase has an appearance that is different from the outer phase and extends within the outer phase.

Independent Claim 2 further defines the product as obtainable by a process that includes filling the outer phase into a can; forming a bore into the outer phase for providing a tubular outer phase; filling the inner phase into the bore of the tubular outer phase; sealing the can; and retorting the sealed can.

Independent Claim 6 includes the limitations of Claim 1 and further includes an outer, tubular phase that extends from the lower end to the upper end that contains a substantially solid, thermally gelled mixture of carbohydrate and protein; and a substantially cylindrical inner phase which extends from the lower end to the upper end of the outer phase. The inner phase is in the form of chunks of a formulated emulsion product in gravy and has an appearance different from the outer phase and extends within the outer phase.

The process defined in Claim 9 includes the steps of filling into a can an outer phase that has an edible source of carbohydrate and protein; forming a bore into the outer phase for providing a tubular outer phase; filling a substantially cylindrical inner phase from a lower end to an upper end of the outer phase that has an edible source of carbohydrate and protein into the bore of the tubular outer phase. Claim 9 also requires that the inner phase has an appearance different from the outer phase in addition to sealing the can and retorting the sealed can.

Appellants recognized the need for canned pet food products having new and interesting appearances to stimulate consumer interest. See, specification, page 2, lines 5-6. The pet food product, and processes for making it, have an attractive appearance formed by two or more discrete phases of different appearances, one within the other. Since the phases are substantially discrete, the product does not have the homogeneous appearance of conventional pet foods. Further, the pet food product of the invention is more suitable for packaging in taller cans in which the height of the can is at least as large as the diameter of the can because it is more easily removed from these cans than previously known products. See, specification, page 2, lines 15-19.

C. THE REJECTION OF CLAIMS 1-17 UNDER 35 U.S.C. §103(a) SHOULD BE REVERSED BECAUSE THE EXAMINER HAS NOT ESTABLISHED A *PRIMA FACIE* CASE OF OBVIOUSNESS

In the final Office Action at page 2, the Examiner alleges that the cited references render Claims 1-17 obvious. Appellants respectfully submit that the obviousness rejection of Claim 1-17 should be reversed because the Examiner failed to establish a *prima facie* case of obviousness. The Examiner failed to establish a *prima facie* case of obviousness in the rejection because there is no teaching or suggestion to combine the cited references to arrive at the present claims and, even if combinable, the cited references fail to disclose or suggest every element of the present claims.

1. One having ordinary skill in the art would not be motivated to combine the cited references to arrive at the present claims

Appellants respectfully submit that one having ordinary skill in the art would not be motivated to combine the cited references to arrive at the present claims because there exists no teaching or suggestion for combining the cited references to arrive at the present claims. Appellants first note that the way in which the rejection is phrased makes it difficult to address. The “or vice versa” language used in the rejection, along with the shear number of references, makes the possible permutations of the rejections substantial. Moreover, because there is not a principal reference it is also difficult to respond. Appellants have attempted to set forth below why the references teach away from certain combinations and why the rejection does not allow Appellants to address every possible combination of the cited references.

Beginning with the *May* reference, which is entirely directed to a canned pet food product having two layers (a base and an upper layer). See, *May*, page 2, lines 11-19. *Quaker Oats* and *Bechtel* relate to a pet food of hash type that contains a center core of eggs completely surrounded (e.g. encased) by the meat mixture. *Quaker Oats*, col. 1, lines 12-15; and *Bechtel*, col. 2, lines 16-20. As a result, *Quaker Oats* and *Bechtel* teach away from the layered pet food product of *May* and thus, teach away from a combination of either reference with *May*.

Ohba relates to vertically and horizontally packed foods containing two or more packed food products. Similarly, *McMahon* discloses vertically packed foods with two liquid food

products. Further, the Examiner has cited five additional references, namely *Gutmann*, *Froebel*, *Zitin*, *Dodge* and *Vickers*, in support of *May*. None of these references even relates to canned products, and all but one do not even relate to pet food products.

Gutmann discloses a method of preserving eggs, particularly to a method in which the separated white and yolks of eggs are preserved in coagulated or hard-boiled condition. In this regard, the main object of *Gutmann* is to convert the eggs into a condition in which they can be easily and safely shipped and stored for an unlimited period of time. See, *Gutmann*, column 1, lines 1-8.

Froebel discloses dog treats which are primarily semi-moist products that are co-extruded and have a relatively hard outer skin, and thus are unsuitable for canning. See, *Froebel*, Examples 1-3. *Froebel* distinguishes different categories of pet food, most notably dry, wet and semi-moist as disclosed on page 1. With respect to canned pet foods, *Froebel* discloses various disadvantages, and further suggests that canned products are “unsuitable for use as treats.” See, *Froebel*, page 1, line 56-57.

Zitin discloses a cheese core surrounded by meat encased in a casing. Col. 1, lines 15-19 The product is prepared by inserting a molding in a casing not a can with a liquid meat product, cooking the meat product, removing the mold and pouring molten cheese into the center and allowing it to solidify. See, *Zitin*, cols. 1 and 2. One skilled in the art would not be inclined to modify the horizontal arrangement (i.e., upper and base layers) of the *May* canned food product based on the teachings of *Zitin* directed to a vertical arrangement in a casing. In fact, such a combination would frustrate the teaching of *May* in that after opening the can and dispensing the pet food, what was the base layer becomes the upper layer. See, *May*, page 2, lines 20-25. Thus, *May* teaches away from the combination with *Zitin*.

Dodge relates to cooked egg rolls and unlike Appellants’ canned invention is completely enclosed in a flexible, synthetic plastic. See, *Dodge*, col. 2, lines 29-34. The synthetic plastic outer wrapper can be either initially tube-like of a selected cross-section, or in the form of a strip that is formed into a tube-like form of a selected cross-section adjacent the extrusion nozzle. See, *Dodge*, col. 4, lines 4-7.

Moreover, like *Zitin*, *Dodge* relates to a food product with a vertical layer arrangement. Indeed, in *Dodge*’s egg roll structure, the outer layer does not extend from the top end to the bottom end (see, *Dodge*, Figs. 1 and 2). This is due to packaging constraints such that the egg

yolk core can be seen in addition to the egg white portion (i.e., albumen) of the egg roll. In this regard, the primary purpose of *Dodge* is to produce a hard-cooked egg roll packaged in film which would represent enough convenience for both residential and commercial use (see, *Dodge*, col. 1, lines 32-42). As with *Zitin*, there is no motivation to combine or modify *May* with *Dodge* to obtain Appellants' invention.

Vickers relates to meat rolls (i.e., butchers meat, such as beef, veal, etc.) rather than canned pet food products, as required by the claimed invention (see, *Vickers*, col. 1, lines 11-16). The meat roll combines course particles and finer size particles in visually separate phases (see, *Vickers*, Figs. 1 and 2) which is said to improve taste (see *Vickers* at col. 1, line 53 to col. 2, line 63). There is no motivation to combine *Vickers* with *May*, where, in *May*, parallel superimposed layers are formed in contrast to an annular-type configuration disclosed in *Vickers*.

The remaining references do not even relate to food products, let alone pet food products. For example, *Henkel* merely relates to a cosmetic; *Mandanas*, like *Henkel*, has nothing to do with food, particularly pet foods, but merely relates to dispensing a viscous paste from containers, such as squeezable tubes; *Routh* merely relates to ice cream and products thereof; *Errass* merely relates to a condiment product that is dispensed from a tube; and the *QP Corp.* references relate to peanut butter and products thereof. Therefore, Appellants do not believe one skilled in the art would consider that references unrelated to pet food have any relevance with respect to the canned pet food product of *May*.

To arrive at the claimed invention, it is respectfully submitted that the Examiner has impermissibly used hindsight to piece together the cited art and has selectively picked and chosen teachings of each of the references in an attempt to explain what the claimed invention discloses. The Court of Appeals for the Federal Circuit has criticized this motivation to combine analysis as being "hindsight reconstructive" because the motivation to combine the references was first disclosed in the present invention. *In re O'Farrell*, 853 F.2d 894, 902-903 (Fed. Cir. 1988).

Further, the requisite prior art suggestion to combine becomes less plausible when the necessary elements can only be found in a large number of references and "the extent to which such suggestion must be explicit in . . . the references, is decided on the facts of each case, in light of the prior art and its relationship to the applicant's invention." 2-5 Chisum on Patents §5.04 (quoting *In re Gorman*, 933 F.2d 982, 986-87; 18 U.S.P.Q.2d 1885, 1888 (Fed. Cir.

1991)). As has been clearly demonstrated herein above, most of the cited references do not even relate to food products, let alone pet food products. Therefore, there exists no reason why a skilled artisan, with no knowledge of the claimed invention, would have selected the prior art components for combination in the manner claimed. In fact, the number of references (17) relied on by the Examiner to support the present rejection is evidence by itself that the invention is not obvious.

Moreover, the Examiner asserts in the final Office Action dated September 20, 2006 at page 2, that Appellants' remarks filed June 28, 2006 (attached as Exhibit B) "do not address the art taken as a whole as to what the art taken as a whole teaches" because Appellants argue each reference separately. See, Office Action dated September 20, 2006, page 2. However, Appellants respectfully submit that each cited reference was discussed individually not to address the issue of novelty under 35 U.S.C. §102, but rather to illustrate, in part, the differences between the individual references and reasons why there exists no motivation to combine the references to render the present claims obvious under 35 U.S.C. §103. Furthermore, Appellants respectfully submit that it is the rejection itself that forced Appellants to respond in such a manner.

For at least the reasons discussed above, the combination of cited references is improper and, thus, fails to render the claimed subject matter obvious. Accordingly, Appellants respectfully submit that the obviousness rejections are improper and the cited references do not render the present claims obvious.

2. The cited references, either alone or in combination, fail to disclose or suggest all of the elements of the claimed invention

Appellants submit that the cited references, alone or in combination, fail to disclose or suggest every element of the present claims. As admitted in the Office Action dated June 3, 2003 (attached as Exhibit C) and the Office Action dated November 14, 2002 (attached as Exhibit D), the primary reference, *May*, fails to disclose or suggest the outer, tubular phase features required by the claimed invention.

For example, *May* fails to disclose or suggest an outer tubular phase which extends from the lower end to the upper end and an inner phase which extends from the lower end to the upper

end extending within the outer phase as required, in part, by the present claims. Instead, *May* discloses clearly defined upper and base layers such that, after opening the can and dispensing the pet food, what was the base layer becomes the upper layer (see, *May*, page 2, lines 20-25) rather than vertical layering as in the present invention. In fact, *May* goes on to reinforce that “[t]he cans produced by the process contain a product which comprises a lower layer made up of solid pieces of food in a thin sauce and having a substantially conical recess and an upper layer of a substantially solid foodstuff. The layers are clear and distinct...” *May*, page 9, lines 17-20. Therefore, *May* fails to teach or suggest an outer, tubular phase which extends from the lower end of the canned pet food product to the upper end of the canned pet food product as in the claimed invention.

The canned pet food of Appellants’ invention has the advantage of being suitable for use in larger cans where the height of the can is at least as large as the diameter of the can. See, specification, page 2, lines 1-19. In taller cans filled with a product like *May*’s, the upper and base layers would be more difficult to shake out into the pet’s bowl or dish. Based on at least these reasons, *May* is deficient with respect to the claimed invention.

The Examiner relies on sixteen other references that teach different cross-sectional shapes of products, many of which are unrelated to canned pet food, to support that it allegedly would have been obvious to use such cross-sectional shapes as a matter of choice or design. See, Office Action dated November 14, 2002, page 3. Accordingly, the Examiner relies on references that disclose a particular cross-sectional shape rather than the invention as a whole which includes an outer, tubular phase which extends from the lower end to the upper end of a canned pet food product and an inner phase which extends from the lower end to the upper end of the canned pet food product.

The Examiner relies on *Quaker Oats* and *Bechtel* in support of the deficiencies of *May* with respect to the outer and inner phases of the claimed invention. See, Office Action dated June 3, 2003. The primary focus of these references relates to a pet food of hash type that contains a center core of eggs. *Quaker Oats*, col. 1, lines 12-15; and *Bechtel*, col. 1, lines 34-36. But, nowhere do these references provide that the egg core extends from the top to the bottom of the can as do the inner and outer phases of the present invention. See, Figs. 1-8 of *Quaker Oats* and *Bechtel*. Instead, the egg core is completely encased within (e.g. completely surrounds) the

meat mixture. See, *Bechtel*, column 2, lines 16-20. Consequently, these references do not remedy the deficiencies of *May*.

Most of the remaining references relate to non-pet food products. As a result, they fail to disclose or suggest a pet food product or method of making same as required, in part, by the present claims. Moreover, the remaining references fail to disclose or suggest a pet food product having an outer tubular phase which extends from the lower end to the upper end and an inner phase which extends from the lower end to the upper end extending within the outer phase as required, in part, by the present claims.

For example, *Ohba* relates to vertically and horizontally packed foods containing two or more packed food products. Similarly, *McMahon* discloses vertically packed foods with two liquid food products. Neither reference discloses an outer tubular phase which extends from the lower end to the upper end and an inner phase which extends from the lower end to the upper end extending within the outer phase. Thus, neither reference can remedy the deficiencies of *May*.

Gutmann discloses a method of preserving eggs, particularly to a method in which the separated white and yolks of eggs are preserved in coagulated or hard-boiled condition. In this regard, the main object of *Gutmann* is to convert the eggs into a condition in which they can be easily and safely shipped and stored for an unlimited period of time. See, *Gutmann*, column 1, lines 1-8.

Froebel discloses dog treats which are primarily semi-moist products that are co-extruded and have a relatively hard outer skin, and thus are unsuitable for canning. See, *Froebel*, Examples 1-3. *Froebel* distinguishes different categories of pet food, most notably dry, wet and semi-moist as disclosed on page 1. With respect to canned pet foods, *Froebel* discloses various disadvantages, and further suggests that canned products are "unsuitable for use as treats." See, *Froebel*, page 1, line 56-57.

Zitin discloses a cheese core surrounded by meat encased in a casing. Col. 1, lines 15-19. The product is prepared by inserting a molding in a casing not a can with a liquid meat product, cooking the meat product, removing the mold and pouring molten cheese into the center and allowing it to solidify. See, *Zitin*, cols. 1 and 2. With respect to Claim 1, *Zitin* fails to disclose a canned product, or a tubular phase, or an inner phase extending from the lower end to the upper end. With respect to Claim 2, *Zitin* also fails to disclose filling the outer phase into a can, sealing

a can and retorting the sealed can. With respect to Claim 6 *Zitin* also fails to disclose an outer phase that includes a substantially solid, thermally gelled mixture of carbohydrate and protein. Lastly, method Claim 9 of Appellants' invention is completely unrelated to *Zitin*.

Dodge relates to cooked egg rolls and unlike Appellants' canned invention is wrapped being completely enclosed in a flexible, synthetic plastic. See, *Dodge*, col. 2, lines 29-34. The synthetic plastic outer wrapper can be either initially tube like of a selected cross-section, or in the form of a strip that is formed into a tube like form of a selected cross-section adjacent the extrusion nozzle. See, *Dodge*, col. 4, lines 4-7.

Moreover, like *Zitin*, *Dodge* relates to a food product with a vertical layer arrangement. Indeed, in *Dodge*'s egg roll structure, the outer layer does not extend from the top end to the bottom end (see, *Dodge*, Figs. 1 and 2) and thus fails to disclose or suggest the present claims. This is due to packaging constraints such that the egg yolk core can be seen in addition to the egg white portion (i.e., albumen) of the egg roll.

Vickers relates to meat rolls (i.e., butchers meat, such as beef, veal, etc.) rather than canned pet food products, as required by the claimed invention (see, *Vickers*, col. 1, lines 11-16). The meat roll combines coarse particles and finer size particles in visually separate phases (see, *Vickers*, Figs. 1 and 2) which is said to improve taste (see *Vickers* at col. 1, line 53 to col. 2, line 63).

The Examiner appears to rely on certain additional references in support of the position that the outer, tubular features of the claimed invention are an allegedly obvious matter of choice and/or design. Even if combinable, clearly these references are deficient with respect to the claimed invention as well. For example, *Henkel* merely relates to a cosmetic; *Mandanas*, like *Henkel*, has nothing to do with food, particularly pet foods, but merely relates to dispensing a viscous paste from containers, such as squeezable tubes; *Routh* merely relates to ice cream and products thereof; *Errass* merely relates to a condiment product that is dispensed from a tube; and the *QP Corp. I and II* references relate to peanut butter and products thereof. Consequently, they fail to disclose or suggest a pet food product or method of making same as required, in part, by the present claims. Moreover, these references fail to disclose or suggest a pet food product having an outer tubular phase which extends from the lower end to the upper end and an inner phase which extends from the lower end to the upper end extending within the outer phase as required, in part, by the present claims.

For the reasons discussed above, the combination of the cited references is improper. Moreover, even if combinable, the cited references do not teach, suggest, or even disclose all of the elements of Claims 1-17, and thus, fail to render the claimed subject matter obvious for at least these reasons. Therefore, for the reasons discussed above, Appellants respectfully submit that Claims 1-17 are novel, nonobvious and distinguishable from the cited references and are in condition for allowance.

VIII. CONCLUSION

Appellants respectfully submit that the Examiner has failed to establish a *prima facie* case of obviousness under 35 U.S.C. §103 with respect to the rejections of Claims 1-17. Accordingly, Appellants respectfully submit that the obviousness rejections are erroneous in law and in fact and should therefore be reversed by this Board.

The Director is authorized to charge \$500 for the Appeal Brief and any additional fees which may be required, or to credit any overpayment to Deposit Account No. 02-1818. If such a withdrawal is made, please indicate the Attorney Docket No. 115808-239 on the account statement.

Respectfully submitted,

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Dated: February 9, 2007

CLAIMS APPENDIX
PENDING CLAIMS ON APPEAL OF
U.S. PATENT APPLICATION SERIAL NO. 09/833,314

1. A canned pet food product having an upper end and a lower end, the product comprising:
 - an outer, tubular phase which is substantially solid and which extends from the lower end to the upper end and which includes an edible source of carbohydrate and proteins; and
 - a substantially cylindrical inner phase which extends from the lower end to the upper end of the outer phase and including an edible source of carbohydrate and protein; the inner phase having an appearance different from the outer phase and extending within the outer phase.
2. A canned pet food product having an upper end and a lower end, the product comprising:
 - an outer, tubular phase which is substantially solid and which extends from the lower end to the upper end and which includes an edible source of carbohydrate and protein; and
 - a substantially cylindrical inner phase which extends from the lower end to the upper end of the outer phase and including an edible source of carbohydrate and protein; the inner phase having an appearance different from the outer phase;

the product obtainable by a process comprising:

 - filling the outer phase into a can;
 - forming a bore into the outer phase for providing a tubular outer phase;
 - filling the inner phase into the bore of the tubular outer phase;
 - sealing the can; and
 - retorting the sealed can.
3. The canned pet food product according to claim 1 in which the outer phase is a thermally gelled mixture.

4. The canned pet food product according to claim 1 in which the inner phase comprises chunks of a formulated emulsion product in a gravy.

5. The canned pet food product according to claim 1 in which the outer phase comprises about 25% to about 75% by volume of the product and the inner phase comprises about 25% to about 75% by volume of the product.

6. A canned pet food product having an upper end and a lower end, the product comprising:

an outer, tubular phase which extends from the lower end to the upper end and which includes a substantially solid, thermally gelled mixture of carbohydrate and protein; and

a substantially cylindrical inner phase which extends from the lower end to the upper end of the outer phase and which is in the form of chunks of a formulated emulsion product in a gravy; the inner phase having an appearance different from the outer phase and extending within the outer phase.

7. The canned pet food product according to claim 1 in which the product has a height at least as large as its diameter.

8. The canned pet food product according to claim 1 in which the phases each have a moisture content of about 70% to about 85% by weight.

9. A process for producing a canned pet food product, the process comprising:
 - filling into a can an outer phase including an edible source of carbohydrate and protein;
 - forming a bore into the outer phase for providing a tubular outer phase;
 - filling a substantially cylindrical inner phase from a lower end to an upper end of the outer phase including an edible source of carbohydrate and protein into the bore of the tubular outer phase, the inner phase having an appearance different from the outer phase;
 - sealing the can; and
 - retorting the sealed can.
10. A process according to claim 9 in which the phases each have a viscosity of about 1500 cp to about 3500 cp when filled into the can.
11. The canned pet food product according to claim 2 in which the outer phase is a thermally gelled mixture.
12. The canned pet food product according to claim 2 in which the inner phase comprises chunks of a formulated emulsion product in a gravy.
13. The canned pet food product according to claim 2 in which the outer phase comprises about 25% to about 75% by volume of the product and the inner phase comprises about 25% to about 75% by volume of the product.
14. The canned pet food product according to claim 2 in which the product has a height at least as large as its diameter.
15. The canned pet food product according to claim 1 in which the phases each have a moisture content of about 70% to about 85% by weight.
16. The canned pet food product according to claim 1 in which the product has a height at least as large as its diameter.

17. The canned pet food product according to claim 1 in which the phases each have a moisture content of about 70% to about 85% by weight.

EVIDENCE APPENDIX

EXHIBIT A: Office Action dated September 20, 2006

EXHIBIT B: Appellants' Response to Non-Final Office Action filed June 28, 2006

EXHIBIT C: Office Action dated June 3, 2003

EXHIBIT D: Office Action dated November 14, 2002

EXHIBIT E: WO 98/05219 to May ("*May*"), cited by the Examiner in the Office Action dated July 13, 2005

EXHIBIT F: GB 1327351 to Quaker Oats ("*Quaker Oats*"), cited by the Examiner in the Office Action dated July 13, 2005

EXHIBIT G: US Patent No. 3,738,847 to Bechtel ("*Bechtel*"), cited by the Examiner in the Office Action dated July 13, 2005

EXHIBIT H: US Patent No. 2,421,199 to Gutmann ("*Gutmann*"), cited by the Examiner in the Office Action dated July 13, 2005

EXHIBIT I: GB 2,194,125 to Froebel ("*Froebel*"), cited by the Examiner in the Office Action dated July 13, 2005

EXHIBIT J: US Patent No. 2,937,095 to Zitin ("*Zitin*"), cited by the Examiner in the Office Action dated July 13, 2005

EXHIBIT K: US Patent No. 3,385,712 to Dodge ("*Dodge*"), cited by the Examiner in the Office Action dated July 13, 2005

EXHIBIT L: GB 341,760 to Vickers ("*Vickers*"), cited by the Examiner in the Office Action dated July 13, 2005

EXHIBIT M: EP 769252 to Ohba ("*Ohba*"), cited by the Examiner in the Office Action dated July 13, 2005

EXHIBIT N: GB 1486634 to Henkel ("*Henkel*"), cited by the Examiner in the Office Action dated July 13, 2005

EXHIBIT O: WO 94/26606 to Mandanas ("*Mandanas*"), cited by the Examiner in the Office Action dated July 13, 2005

EXHIBIT P: U.S. Patent No. 2,344,901 to Routh ("*Routh*"), cited by the Examiner in the Office Action dated July 13, 2005

EXHIBIT Q: GB 1583351 to McMahon ("*McMahon*"), cited by the Examiner in the Office Action dated July 13, 2005

EXHIBIT R: EP 675046 to Erras ("Erras"), cited by the Examiner in the Office Action dated July 13, 2005

EXHIBIT S: Australia 50797/96 to Hillebrand ("Hillebrand"), cited by the Examiner in the Office Action dated July 13, 2005

EXHIBIT T: JP 59-31677 to QP Corp. I ("QP Corp. I"), cited by the Examiner in the Office Action dated July 13, 2005

EXHIBIT U: JP 61-100174 to QP Corp. II ("QP Corp. II"), cited by the Examiner in the Office Action dated July 13, 2005

RELATED PROCEEDINGS APPENDIX

None.



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
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Alexandria, Virginia 22313-1450
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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/833,314	04/10/2001	Christophe Dupont	112741-239	4353
29157	7590	07/13/2005		
BELL, BOYD & LLOYD LLC			EXAMINER	
P. O. BOX 1135			WEINSTEIN, STEVEN L	
CHICAGO, IL 60690-1135			ART UNIT	PAPER NUMBER
			1761	

DATE MAILED: 07/13/2005

Due: 10-13-05

Please find below and/or attached an Office communication concerning this application or proceeding.

RECEIVED
BELL, BOYD & LLOYD
INTELLECTUAL PROPERTY DOCKET
JUL 18 2005
ATTY *hmb-myb*
DOCKET # *113808-239*

Office Action Summary	Application No.	Applicant(s)	
	09/833,314	DUPONT ET AL.	
	Examiner Steven L. Weinstein	Art Unit 1761	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

**A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM
THE MAILING DATE OF THIS COMMUNICATION.**

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) Responsive to communication(s) filed on 06 April 2005.

2a) This action is **FINAL**. 2b) This action is non-final.

3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) Claim(s) 1-17 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) Claim(s) _____ is/are allowed.

6) Claim(s) 1-17 is/are rejected.

7) Claim(s) _____ is/are objected to.

8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) The specification is objected to by the Examiner.

10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) All b) Some * c) None of:
1. Certified copies of the priority documents have been received.
2. Certified copies of the priority documents have been received in Application No. _____.
3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) Notice of References Cited (PTO-892)
2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.

4) Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.

5) Notice of Informal Patent Application (PTO-152)
6) Other: _____.

The terminal disclaimer filed 4/6/05 has been approved and placed of record in the file, thus obviating the obvious type double patenting rejections.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over May et al (WO '219), in view of Quaker oats (GB '351), and Bechtel ('847) further in view of Gutmann ('199), Froebel et al (GB '125), Zitin ('095), Dodge et al ('712) and Vickers (GB '760), further in view of Ohba (Ep '252), Henkel (GB, '634), Mandanas (WO '606), Routh ('901), McMahan (GB '351), Errass (Ep '046), Hillebrand (Austral. '797/96), QP Corp (Jp '677) and QP Corp (Jp '174) for the reasons given in the Office actions mailed 1/4/05, 2/9/04, 6/3/03 and 11/14/02.

All of applicants' remarks filed 4/6/05 have been fully and carefully considered but are not found to be convincing for the reasons of record. Note that the secondary art does not have to teach pet food in a composite concentric arrangement since May et al already teaches pet food in cans in a composite pattern. The secondary art is relied on to show that composite concentric arrangements of products including foods is notoriously conventional. Applicants' are therefore employing a known composite pattern/design and achieve no new unexpected result therefrom.

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO

MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Steven L Weinstein whose telephone number is (571) 272-1410. The examiner can normally be reached on Monday-Friday 6:30am to 3:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Milton Cano can be reached on (571) 272-1398. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

S. Weinstein/af
June 17, 2005

Steve Weinstein
STEVE WEINSTEIN
PRIMARY EXAMINER 1761

EVIDENCE APPENDIX

EXHIBIT A: Office Action dated September 20, 2006

EXHIBIT B: Appellant's Remarks dated 6/28/06

EXHIBIT C: Office Action June 3, 2003

EXHIBIT D: Office Action dated November 14, 2002

EXHIBIT E: WO 98/05219 to May ("May"), cited by the Examiner in the Office Action dated July 13, 2005

EXHIBIT F: GB 1327351 to Quaker Oats ("Quaker Oats"), cited by the Examiner in the Office Action dated July 13, 2005

EXHIBIT G: US Patent No. 3,738,847 to Bechtel ("Bechtel"), cited by the Examiner in the Office Action dated July 13, 2005

EXHIBIT H: US Patent No. 2,421,199 to Gutmann ("Gutmann"), cited by the Examiner in the Office Action dated July 13, 2005

EXHIBIT I: GB 2,194,125 to Froebel ("Froebel"), cited by the Examiner in the Office Action dated July 13, 2005

EXHIBIT J: US Patent No. 2,937,095 to Zitin ("Zitin"), cited by the Examiner in the Office Action dated July 13, 2005

EXHIBIT K: US Patent No. 3,385,712 to Dodge ("Dodge"), cited by the Examiner in the Office Action dated July 13, 2005

EXHIBIT L: GB 341,760 to Vickers ("Vickers"), cited by the Examiner in the Office Action dated July 13, 2005

EXHIBIT M: EP 769252 to Ohba ("Ohba"), cited by the Examiner in the Office Action dated July 13, 2005

EXHIBIT N: GB 1486634 to Henkel ("Henkel"), cited by the Examiner in the Office Action dated July 13, 2005

EXHIBIT O: WO 94/26606 to Mandanas ("Mandanas"), cited by the Examiner in the Office Action dated July 13, 2005

EXHIBIT P: US Patent No. 2,344,901 to Routh ("Routh"), cited by the Examiner in the Office Action dated July 13, 2005

EXHIBIT Q: GB 158351 to McMahon ("McMahon"), cited by the Examiner in the Office Action dated July 13, 2005

EXHIBIT R: EP 675046 to Erras ("Erras"), cited by the Examiner in the Office Action dated July 13, 2005

EXHIBIT S: Australia 50797/96 to Hillebrand ("Hillebrand"), cited by the Examiner in the Office Action dated July 13, 2005

EXHIBIT T: JP 59-31677 to QP Corp. I ("QP Corp. I"), cited by the Examiner in the Office Action dated July 13, 2005

EXHIBIT U: JP 61-100174 to QP Corp. II ("QP Corp. II"), cited by the Examiner in the Office Action dated July 13, 2005

EXHIBIT A



UNITED STATES PATENT AND TRADEMARK OFFICE

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/833,314	04/10/2001	Christophe Dupont	112701-239	4353
29157	7590	09/20/2006		
BELL, BOYD & LLOYD LLC			EXAMINER	
P. O. BOX 1135			WEINSTEIN, STEVEN L	
CHICAGO, IL. 60690-1135			ART UNIT	PAPER NUMBER
			1761	

DATE MAILED: 09/20/2006

Due: 12-20-06

Please find below and/or attached an Office communication concerning this application or proceeding.

RECEIVED
BELL, BOYD & LLOYD
INTELLECTUAL PROPERTY DOCKET

SEP 25 2006

ATTY
DOCKET #

*lynB-mYB
11508-239*

Office Action Summary	Application No.	Applicant(s)
	09/833,314	DUPONT ET AL.
	Examiner	Art Unit
	Steven L. Weinstein	1761

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) Responsive to communication(s) filed on 28 June 2006.
 2a) This action is **FINAL**. 2b) This action is non-final.
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) Claim(s) 1-17 is/are pending in the application.
 4a) Of the above claim(s) is/are withdrawn from consideration.
 5) Claim(s) is/are allowed.
 6) Claim(s) 1-17 is/are rejected.
 7) Claim(s) is/are objected to.
 8) Claim(s) are subject to restriction and/or election requirement.

Application Papers

9) The specification is objected to by the Examiner.
 10) The drawing(s) filed on is/are: a) accepted or b) objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. .
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) Notice of References Cited (PTO-892)
 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
 3) Information Disclosure Statement(s) (PTO/SB/08)
 Paper No(s)/Mail Date

4) Interview Summary (PTO-413)
 Paper No(s)/Mail Date.
 5) Notice of Informal Patent Application
 6) Other:

Claims 1-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ohba et al (Ep '252) in view of Vickers (GB '760) and May et al (WO'219), or vice versa, i.e., Vickers in view of Ohba et al and May et al both further in view of Quaker Oats (GB '351), and Bechtel ('847) further in view of Gutmann ('199), Froebel et al (GB '125), Zitin ('095), Dodge et al ('712) and, further in view, Henkel (GB, '634), Mandanas (WO '606), Routh ('901), McMahan (GB '351), Errass (Ep '046), Hillebrand (Austral. '797/96), QP Corp (Jp '677) and QP Corp (Jp '174), further in view of applicants admission of the prior art, further in view of Diaz(5,518,746), Hoashi (JP 62-104566), Honma et al (JP59-159758), and Sonoya (JP57-12987), for the reasons given in the Office actions mailed 1/4/05, 2/9/04, 6/3/03, 11/14/02, and 3/30/06.

All of applicants remarks filed 6/28/06 have been fully and carefully considered but are not found to be convincing. The remarks, many of which have been previously made, argue each reference separately, as to what each reference shows or does not show. The remarks do not address the art taken as a whole as to what the art taken as a whole teaches. Although it would appear that no one reference specifically teaches the recited composition with the recited shape in a can, this issue only addresses novelty under 35USC102, and not obviousness under 35USC103. The fact is that the art taken as a whole teaches that it was conventional to provide composite, multiphased pet foods in a can, that it was conventional to provide composite, multiphased foods having the recited shape, that it was conventional to provide composite, multiphased pet foods in a can wherein one phase surrounds a second phase, and that it was conventional to provide composite, multiphased foods with the recited shape in a can. A

secondary reference which teaches a composite, multiphased food in a can does not have to teach the specific recited composite, multiphased food composition for the rejection to be proper when the specific composite, multiphased food composition is already taught in another reference. The remarks also urge that one or more of the secondary references do not show, for example, the recited shape of the product in a can or the recited shape in the recited composition. The remarks are replete with these kinds of urgings wherein it is urged that a particular reference does not teach one or more recitations which recitations are already shown by another reference relied upon. The fact is, there appears to be nothing magic about putting a multiphased pet food of specific structure in a can, especially when it was conventional to place multiphased pet foods in cans, it was conventional to put other multiphased foods having the same specific structure in cans, it was conventional to provide the specific multiphase composition in cans, and it was conventional to generally employ the specific structure in multiphased foods in general. As noted several times in previous Office actions, the urgings rely on a specific, notoriously conventional multiphased structure, design or pattern, and achieve no new or unexpected result. The specification urges there is a need for a pet food with "new and interesting appearances to simulate consumer interest" (the pet or its owner?), but the art taken as a whole clearly evidences the fact that the appearance is not new and the art taken as a whole recognizes that appearance is advantageous in foods including pet foods.

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Steven L. Weinstein whose telephone number is 571-272-1410. The examiner can normally be reached on Monday-Friday 7:00 A.M.-2:30 P.M..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Milton Cano can be reached on 571-272-1398. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Steve Weinstein
STEVE WEINSTEIN
PRIMARY EXAMINER 1761
9/15/06

EXHIBIT B

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant(s): Dupont et al.
Appl. No.: 09/833,314
Conf. No.: 4353
Filed: April 10, 2001
Title: CANNED FILLED PET FOOD
Art Unit: 1761
Examiner: Steven L. Weinstein
Docket No.: 115808-239

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

RESPONSE TO NON-FINAL OFFICE ACTION

Sir:

In response to the non-final Office Action dated March 30, 2006, please amend the above-identified patent application as follows:

Amendments to the Claims are reflected in the listing of claims which begins on page 2 of this paper.

Remarks begin on page 6 of this paper.

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claim 1 (currently amended): A canned pet food product having an upper end and a lower end, the product comprising:

an outer, tubular phase which is substantially solid and which extends from the lower end to the upper end and which includes an edible source of carbohydrate and proteins; and

~~an a substantially cylindrical~~ inner phase which extends from the lower end to the upper end ~~of the outer phase~~ and including an edible source of carbohydrate and protein; the inner phase having an appearance different from the outer phase and extending within the outer phase.

Claim 2 (currently amended): A canned pet food product having an upper end and a lower end, the product comprising:

an outer, tubular phase which is substantially solid and which extends from the lower end to the upper end and which includes an edible source of carbohydrate and protein; and

~~an a substantially cylindrical~~ inner phase which extends from the lower end to the upper end ~~of the outer phase~~ and including an edible source of carbohydrate and protein; the inner phase having an appearance different from the outer phase;

the product obtainable by a process comprising:

filling the outer phase into a can;

forming a bore into the outer phase for providing a tubular outer phase;

filling the inner phase into the bore of the tubular outer phase;

sealing the can; and

retorting the sealed can.

Claim 3 (previously presented): The canned pet food product according to claim 1 in which the outer phase is a thermally gelled mixture.

Claim 4 (previously presented): The canned pet food product according to claim 1 in which the inner phase comprises chunks of a formulated emulsion product in a gravy.

Claim 5 (previously presented): The canned pet food product according to claim 1 in which the outer phase comprises about 25% to about 75% by volume of the product and the inner phase comprises about 25% to about 75% by volume of the product.

Claim 6 (currently amended): A canned pet food product having an upper end and a lower end, the product comprising:

an outer, tubular phase which extends from the lower end to the upper end and which includes a substantially solid, thermally gelled mixture of carbohydrate and protein; and

~~an~~ a substantially cylindrical inner phase which extends from the lower end to the upper end of the outer phase and which is in the form of chunks of a formulated emulsion product in a gravy; the inner phase having an appearance different from the outer phase and extending within the outer phase.

Claim 7 (previously presented): The canned pet food product according to claim 1 in which the product has a height at least as large as its diameter.

Claim 8 (previously presented): The canned pet food product according to claim 1 in which the phases each have a moisture content of about 70% to about 85% by weight.

Claim 9 (currently amended): A process for producing a canned pet food product, the process comprising:

filling into a can an outer phase including an edible source of carbohydrate and protein;

forming a bore into the outer phase for providing a tubular outer phase;

filling an a substantially cylindrical inner phase from a lower end to an upper end of the outer phase including an edible source of carbohydrate and protein into the bore of the tubular outer phase, the inner phase having an appearance different from the outer phase;

sealing the can; and

retorting the sealed can.

Claim 10 (original): A process according to claim 9 in which the phases each have a viscosity of about 1500 cp to about 3500 cp when filled into the can.

Claim 11 (previously presented): The canned pet food product according to claim 2 in which the outer phase is a thermally gelled mixture.

Claim 12 (previously presented): The canned pet food product according to claim 2 in which the inner phase comprises chunks of a formulated emulsion product in a gravy.

Claim 13 (previously presented): The canned pet food product according to claim 2 in which the outer phase comprises about 25% to about 75% by volume of the product and the inner phase comprises about 25% to about 75% by volume of the product.

Claim 14 (previously presented): The canned pet food product according to claim 2 in which the product has a height at least as large as its diameter.

Claim 15 (previously presented): The canned pet food product according to claim 1 in which the phases each have a moisture content of about 70% to about 85% by weight.

Claim 16 (previously presented): The canned pet food product according to claim 1 in which the product has a height at least as large as its diameter.

Claim 17 (previously presented): The canned pet food product according to claim 1 in which the phases each have a moisture content of about 70% to about 85% by weight.

REMARKS

This Amendment is submitted in response to the non-final Office Action mailed on March 30, 2006. No fee is due in connection with this Amendment. The Director is authorized to charge any additional fees which may be required, or to credit any overpayment to Deposit Account No. 02-1818. If such a withdrawal is made, please indicate the Attorney Docket No. 115808-239 on the account statement.

Claims 1-17 are pending in this application. In the Office Action, Claims 1-2, 5, 8-9, 13, 15 and 17 are rejected under 35 U.S.C. §102 and Claims 1-17 are rejected under 35 U.S.C. §103. In response Claims 1-2, 6 and 9 have been amended. This amendment does not add new matter. In view of the amendment and/or for the reasons set forth below, Applicants respectfully submit that the rejections should be withdrawn.

In the Office Action, Claims 1-2, 5, 8-9, 13, 15 and 17 are rejected under 35 U.S.C. §102(a) as anticipated by WO 98/05219 to May et al. ("May") with Webster's Unabridged Dictionary ("Webster's"), U.S. Patent No. 1,720,788 to Hammerstein ("Hammerstein"), U.S. Patent No. 3,156,350 to Lockwood ("Lockwood") and U.S. Patent No. 3,207,642 to Lucich ("Lucich") being relied on as evidence of anticipation by *May*. Applicants respectfully disagree with and traverse this rejection for at least the reasons set forth below.

Applicants respectfully submit that the anticipation rejection is improper because the Patent Office is using 5 references to allege that the present claims are anticipated. "A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." *Verdegaal Bros v. Union Oil of California*, 2 U.S.P.Q.2d 1051, 1053 (Fed. Cir. 1987) (emphasis added). Federal Circuit decisions have repeatedly emphasized the notion that anticipation cannot be found where less than all elements of a claimed invention are set forth in a reference. *See, e.g. Transclean Corp. v. Bridgewood Services, Inc.*, 290 F.3d 1364 (Fed. Cir. 2002). In this regard, a reference disclosing "substantially the same thing" is not enough to anticipate. *Jamesbury Corp. v. Litton Indust. Prod., Inc.*, 756 F.2d 1556, 1560 (Fed. Cir. 1985). A single reference must clearly disclose each and every limitation of the claimed invention before anticipation may be found.

Applicants have amended independent Claims 1-2, 6 and 9 to recite, in part, a pet food product having a substantially cylindrical inner phase which extends from the lower end to the

upper end of the outer phase. The amendment is fully supported in the specification, for example, at page 7, lines 1-20 and Figure 3-4. In contrast, Applicants respectfully submit that the cited references fail to disclose or suggest every element of the present claims as currently amended.

For example, *May* fails to disclose or suggest pet food product comprising a substantially cylindrical inner phase which extends from the lower end to the upper end of the outer phase as required, in part, by the present claims. Instead, *May* discloses clearly defined upper and base layers such that, after opening the can and dispensing the pet food, what was the base layer becomes the upper layer (see, *May*, page 2, lines 20-25) rather than vertical layering as in the present invention. Consequently, neither layer of *May* extends from the lower ends to the upper ends of each other. Moreover, neither layer of *May* is in the form of a substantially cylindrical inner phase that extends the entire length of the product.

May goes on to reinforce that “[t]he cans produced by the process contain a product which comprises a lower layer made up of solid pieces of food in a thin sauce and having a substantially conical recess and an upper layer of a substantially solid foodstuff. The layers are clear and distinct...” *May*, page 9, lines 17-20. Therefore, *May* at the most teaches a conical recess that opens into the base layer and fails to teach or suggest a substantially cylindrical inner phase which extends from the lower end to the upper end of the outer, tubular phase of the canned pet food product as in the claimed invention. In fact, *May* also fails to even teach or suggest any outer, tubular phase as required, in part, by the present claims. The remaining references (*Webster's*, *Hammerstein*, *Lockwood* and *Lucich*) fail to remedy the deficiencies of *May* and are not even directed to pet foods products.

For at least the reasons discussed above, Applicants respectfully submit that independent Claims 1-2 and 9 and Claims 5, 8, 13, 15 and 17 that depend from these claims are novel, nonobvious and distinguishable from the cited references.

Accordingly, Applicants respectfully request that the rejection of Claims 1-2, 5, 8-9, 13, 15 and 17 under 35 U.S.C. §102 be withdrawn.

Claims 7, 14 and 16 are rejected under 35 U.S.C. §103(a) as being unpatentable over *May* in view of GB 1327351 to Quaker Oats (“*Quaker Oats*”). Applicant respectfully submits that the patentability of Claim 1 as previously discussed renders moot the obviousness rejection of

Claims 7, 14 and 16 that depend from Claim 1. In this regard, the cited art fails to teach or suggest the elements of Claims 7, 14 and 16 in combination with the novel elements of Claim 1.

In the Office Action, Claims 1-17 are rejected under 35 U.S.C. § 103(a) over EP 769252 to Ohba (“*Ohba*”) in view of GB 341,760 to Vickers (“*Vickers*”) and WO 98/05219 to May (“*May*”), or vice versa, in further view of GB 1327351 to Quaker Oats (“*Quaker Oats*”) and US Patent No. 3,738,847 to Bechtel (“*Bechtel*”), further in view of US Patent No. 2,421,199 to Gutmann (“*Gutmann*”), GB 2,194,125 to Froebel (“*Froebel*”), US Patent No. 2,937,095 to Zitin (“*Zitin*”), US Patent No. 3,385,712 to Dodge (“*Dodge*”) and further in view of, GB 1486634 to Henkel (“*Henkel*”), WO 94/26606 to Mandanas (“*Mandanas*”), U.S. Patent No. 2,344,901 to Routh (“*Routh*”), GB 1583351 to McMahon (“*McMahon*”), EP 675046 to Errass (“*Errass*”), Australia 50797/96 to Hillebrand (“*Hillebrand*”), JP 59-31677 to QP Corp. I (“*QP Corp. I*”) and JP 61-100174 to QP Corp. II (“*QP Corp. II*”) further in view of newly cited U.S. Patent No. 5,518,746 to Diaz (“*Diaz*”), JP 62-104566 to Hoashi (“*Hoashi*”), JP 59-159758 to Honma et al. (“*Honma*”) and JP 57-12987 to Sonoya (“*Sonya*”). Applicants respectfully disagree with and traverse this rejection for at least the reasons set forth below.

Applicant respectfully submits that because the cited references are directed towards completely unrelated inventions with different objectives, one skilled in the art would not be motivated to modify or combine them to arrive at the present claims. In fact, the Federal Circuit has held that it is “impermissible to use the claimed invention as an instruction manual or ‘template’ to piece together the teachings of the prior art so that the claimed invention is rendered obvious.” *In re Fritch*, 23 U.S.P.Q.2d 1780, 1784 (Fed. Cir. 1992). “One cannot use hindsight reconstruction to pick and choose among isolated disclosures in the prior art to deprecate the claimed invention” *In re Fine*, 837 F.2d 1071 (Fed. Cir. 1988).

For example, *May* is entirely directed to a canned pet food product having two layers (a base and an upper layer). See, *May*, page 2, lines 11-19. *Quaker Oats* and *Bechtel* relate to a pet food of hash type that contains a center core of eggs completely surrounded (e.g. encased) by the meat mixture. *Quaker Oats*, col. 1, lines 12-15; and *Bechtel*, col. 2, lines 16-20. As a result, *Quaker Oats* and *Bechtel* teach away from the layered pet food product of *May*.

Ohba relates to vertically and horizontally packed foods containing two or more packed food products. Similarly, *McMahon* discloses vertically packed foods with two liquid food

products. Further, the Patent Office has cited five additional references, namely *Gutmann*, *Froebel*, *Zitin*, *Dodge* and *Vickers*, in support of *May*. None of these references even relates to canned products, and all but one do not even relate to pet food products.

Gutmann discloses a method of preserving eggs, particularly to a method in which the separated white and yolks of eggs are preserved in coagulated or hard-boiled condition. In this regard, the main object of *Gutmann* is to convert the eggs into a condition in which they can be easily and safely shipped and stored for an unlimited period of time. See, *Gutmann*, column 1, lines 1-8.

Froebel discloses dog treats which are primarily semi-moist products that are co-extruded and have a relatively hard outer skin, and thus are unsuitable for canning. See, *Froebel*, Examples 1-3. *Froebel* distinguishes different categories of pet food, most notably dry, wet and semi-moist as disclosed on page 1. With respect to canned pet foods, *Froebel* discloses various disadvantages, and further suggests that canned products are “unsuitable for use as treats.” See, *Froebel*, page 1, line 56-57.

Zitin discloses a cheese core surrounded by meat encased in a casing. See, *Zitin*, column 1, lines 15-19. The product is prepared by inserting a molding in a casing not a can with a liquid meat product, cooking the meat product, removing the mold and pouring molten cheese into the center and allowing it to solidify. See, *Zitin*, cols. 1 and 2. One skilled in the art would not be inclined to modify the horizontal arrangement (i.e., upper and base layers) of the *May* canned food product based on the teachings of *Zitin* directed to a vertical arrangement in a casing. In fact, such a combination would frustrate the teaching of *May* that after opening the can and dispensing the pet food, what was the base layer becomes the upper layer. See, *May*, page 2, lines 20-25. Thus, *May* teaches away from the combination with *Zitin*.

Dodge relates to cooked egg rolls and unlike Applicants’ canned invention is completely enclosed in a flexible, synthetic plastic. See, *Dodge*, col. 2, lines 29-34. The synthetic plastic outer wrapper can be either initially tube like of a selected cross-section, or in the form of a strip that is formed into a tube like form of a selected cross-section adjacent the extrusion nozzle. See, *Dodge*, col. 4, lines 4-7.

Moreover, like *Zitin*, *Dodge* relates to a food product with a vertical layer arrangement. Indeed, in *Dodge*’s egg roll structure, the outer layer does not extend from the top end to the

bottom end (see, *Dodge*, Figs. 1 and 2). This is due to packaging constraints such that the egg yolk core can be seen in addition to the egg white portion (i.e., albumen) of the egg roll. In this regard, the primary purpose of *Dodge* is to produce a hard-cooked egg roll packaged in film which would represent enough convenience for both residential and commercial use (see, *Dodge*, col. 1, lines 32-42). As with *Zitin*, there is no motivation to combine or modify *May* with *Dodge* to obtain Applicants' invention.

Vickers relates to meat rolls (i.e., butchers meat, such as beef, veal, etc.) rather than canned pet food products, as required by the claimed invention (see, *Vickers*, col. 1, lines 11-16). The meat roll combines course particles and finer size particles in visually separate phases (see, *Vickers*, Figs. 1 and 2) which is said to improve taste (see *Vickers* at col. 1, line 53 to col. 2, line 63). There is no motivation to combine *Vickers* with *May*, where, in *May*, parallel superimposed layers are formed in contrast to an annular-type configuration disclosed in *Vickers*.

The remaining references do not even relate to pet food products. For example, *Henkel* merely relates to a cosmetic; *Mandanas*, like *Henkel*, has nothing to do with food, particularly pet foods, but merely relates to dispensing a viscous paste from containers, such as squeezable tubes; *Routh* merely relates to ice cream and products thereof; *Errass* merely relates to a condiment product that is dispensed from a tube; and the *QP Corp.* references relate to peanut butter and products thereof. *Diaz* relates to baked foods, *Hoashi* relates to a jelly with meat paste, *Honma* relates to making foods using a coagulated egg yolk and coagulated liquid albumen and *Sonya* relates to a food container. Therefore, Applicants do not believe one skilled in the art would consider that these references which are unrelated to pet food have any relevance with respect to the canned pet food product of *May*.

Applicants respectfully submit that the Patent Office has improperly applied hindsight reasoning by selectively piecing together teachings of each of the references in an attempt to recreate what the claimed invention discloses. As the Federal Circuit explained, "the mere fact that the prior art may be modified in the manner suggested by the examiner does not make the modification obvious unless the prior art suggested the desirability of the modification." *In re Fritch*, at 1783-17. One cannot use "hindsight reconstruction to pick and choose among isolated disclosures in the prior art" to re-create the claimed invention. *In re Fine*, 5 U.S.P.Q. 2d 1596 (Fed. Cir. 1988).

Applicants also respectfully submit that even if combinable the cited references fail to disclose or suggest every element of the present claims. For example, *May* fails to disclose or suggest a pet food product comprising a substantially cylindrical inner phase which extends from the lower end to the upper end of the outer phase as required, in part, by the present claims as previously detailed. *Ohba* relates to vertically and horizontally packed foods containing two or more packed food products and fails to disclose any pet food product having a substantially cylindrical inner phase or an inner phase that extends from the lower end to the upper end of the outer phase. *Vickers* fails to disclose or suggest any pet food product.

The canned pet food of Applicants' invention has the advantage, for example, of being suitable for use in larger cans where the height of the can is at least as large as the diameter of the can. See, specification, page 2, lines 1-19. In taller cans filled with a product like *May*'s, the upper and base layers would be more difficult to shake out into the pet's bowl or dish. Based on at least these reasons, all of the cited references are deficient with respect to the claimed invention.

The Patent Office relies on numerous other references that teach different cross-sectional shapes of products, many of which are unrelated to canned pet food, to support that it allegedly would have been obvious to use such cross-sectional shapes as a matter of choice or design. Accordingly, the Patent Office relies on references that disclose a particular cross-sectional shape rather than the invention as a whole which includes, in part, pet food in an outer, tubular phase which extends from the lower end to the upper end of a canned pet food product and pet food in a substantially cylindrical inner phase which extends from the lower end to the upper end of the outer phase of the canned pet food product.

The Patent Office relies on *Quaker Oats* and *Bechtel* in support of the deficiencies of *May* with respect to the outer and inner phases of the claimed invention. See, Office Action dated June 3, 2003. The primary focus of these references relates to a pet food of hash type that contains a center core of eggs. *Quaker Oats*, col. 1, lines 12-15; and *Bechtel*, col. 1, lines 34-36. But, nowhere do these references provide that the egg core extends from the top to the bottom of the can as do the inner and outer phases of the present invention. See, Figs. 1-8 of *Quaker Oats* and *Bechtel*. Instead, the egg core is completely encased within (e.g. completely surrounds) the

meat mixture. See, *Bechtel*, column 2, lines 16-20. Consequently, these references do not remedy the deficiencies of *May*.

Most of the remaining references relate to non-pet food products. As a result, they fail to disclose or suggest a pet food product or method of making same as required, in part, by the present claims. Moreover, the remaining references fail to disclose or suggest a pet food product having an outer tubular phase which extends from the lower end to the upper end or a substantially cylindrical inner phase which extends from the lower end to the upper end of the outer phase as required, in part, by the present claims.

For example, *McMahon* discloses vertically packed foods with two liquid food products. *Gutmann* discloses a method of preserving eggs, particularly to a method in which the separated white and yolks of eggs are preserved in coagulated or hard-boiled condition. In this regard, the main object of *Gutmann* is to convert the eggs into a condition in which they can be easily and safely shipped and stored for an unlimited period of time. See, *Gutmann*, column 1, lines 1-8.

Froebel discloses dog treats which are primarily semi-moist products that are co-extruded and have a relatively hard outer skin, and thus are unsuitable for canning. See, *Froebel*, Examples 1-3. *Froebel* distinguishes different categories of pet food, most notably dry, wet and semi-moist as disclosed on page 1. With respect to canned pet foods, *Froebel* discloses various disadvantages, and further suggests that canned products are "unsuitable for use as treats." See, *Froebel*, page 1, line 56-57.

Zitin discloses a cheese core surrounded by meat encased in a casing. See, *Zitin*, column 1, lines 15-19. The product is prepared by inserting a molding in a casing not a can with a liquid meat product, cooking the meat product, removing the mold and pouring molten cheese into the center and allowing it to solidify. See, *Zitin*, cols. 1 and 2. With respect to Claim 1, *Zitin* fails to disclose a canned product, or a tubular phase, or an inner phase extending from the lower end to the upper end. With respect to Claim 2, *Zitin* also fails to disclose filling the outer phase into a can, sealing a can and retorting the sealed can. With respect to Claim 6 *Zitin* also fails to disclose an outer phase that includes a substantially solid, thermally gelled mixture of carbohydrate and protein. Lastly, method Claim 9 of Applicants' invention is completely unrelated to *Zitin*.

Dodge relates to cooked egg rolls and unlike Applicants' canned invention is wrapped being completely enclosed in a flexible, synthetic plastic. See, *Dodge*, col. 2, lines 29-34. The synthetic plastic outer wrapper can be either initially tube like of a selected cross-section, or in the form of a strip that is formed into a tube like form of a selected cross-section adjacent the extrusion nozzle. See, *Dodge*, col. 4, lines 4-7.

Moreover, like *Zitin*, *Dodge* relates to a food product with a vertical layer arrangement. Indeed, in *Dodge*'s egg roll structure, the outer layer does not extend from the top end to the bottom end (see, *Dodge*, Figs. 1 and 2) and thus fails to disclose or suggest the present claims. This is due to packaging constraints such that the egg yolk core can be seen in addition to the egg white portion (i.e., albumen) of the egg roll.

The Patent Office appears to rely on certain additional references in support of the position that the outer, tubular features of the claimed invention are an allegedly obvious matter of choice and/or design. Even if combinable, clearly these references are deficient with respect to the claimed invention as well. For example, *Henkel* merely relates to a cosmetic; *Mandanas*, like *Henkel*, has nothing to do with food, particularly pet foods, but merely relates to dispensing a viscous paste from containers, such as squeezable tubes; *Routh* merely relates to ice cream and products thereof; *Errass* merely relates to a condiment product that is dispensed from a tube; and the *QP Corp. I and II* references relate to peanut butter and products thereof; *Diaz* relates to baked foods; *Hoashi* relates to a jelly with meat paste; *Honma* relates to making foods using a coagulated egg yolk and coagulated liquid albumen and *Sonoya* relates to a food container. Consequently, theses cited references fail to disclose or suggest a pet food product or method of making same as required, in part, by the present claims. Moreover, these references fail to disclose or suggest a pet food product having an outer tubular phase which extends from the lower end to the upper end or a substantially cylindrical inner phase which extends from the lower end to the upper end of the outer phase as required, in part, by the present claims.

Accordingly, Applicants respectfully request that the rejections of Claims 1-17 under 35 U.S.C. §103(a) be withdrawn.

For the foregoing reasons, Applicants respectfully request reconsideration of the above-identified patent application and earnestly solicit an early allowance of same.

Respectfully submitted,

BELL, BOYD & LLOYD LLC

BY _____

Robert M. Barrett
Reg. No. 30,142
Customer No. 29157

Dated: June 28, 2006

EXHIBIT C

**UNITED STATES PATENT AND TRADEMARK OFFICE**

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/833,314	04/10/2001	Christophe Dupont	112701-239	4353

29157 7590 06/03/2003
BELL, BOYD & LLOYD LLC
P. O. BOX 1135
CHICAGO, IL 60690-1135

EXAMINER

WEINSTEIN, STEVEN L

ART UNIT	PAPER NUMBER
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1761

DATE MAILED: 06/03/2003

8
DUE: 9-3-03

Please find below and/or attached an Office communication concerning this application or proceeding.

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JUN 9 2003

ATTY: *RMB*
DOCKET # *112701-239*

Office Action Summary

Application No.

09/833314

Applicant(s)

DU PONT ET AL

Examiner

S. WEINSTEIN

Group Art Unit

1761

*—The MAILING DATE of this communication appears on the cover sheet beneath the correspondence address—***Period for Reply****A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.**

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, such period shall, by default, expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

Responsive to communication(s) filed on 2/19/03

This action is **FINAL**.

Since this application is in condition for allowance except for formal matters, **prosecution as to the merits is closed** in accordance with the practice under Ex parte Quayle, 1935 C.D. 1 1; 453 O.G. 213.

Disposition of Claims

Claim(s) 1-17 is/are pending in the application.

Of the above claim(s) _____ is/are withdrawn from consideration.

Claim(s) 1-17 is/are allowed.

Claim(s) 1-17 is/are rejected.

Claim(s) _____ is/are objected to.

Claim(s) _____ are subject to restriction or election requirement

Application Papers

The proposed drawing correction, filed on _____ is approved disapproved.

The drawing(s) filed on _____ is/are objected to by the Examiner

The specification is objected to by the Examiner.

The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119 (a)-(d)

Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119 (a)-(d).

All Some* None of the:

Certified copies of the priority documents have been received.

Certified copies of the priority documents have been received in Application No. _____.

Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a))

*Certified copies not received: _____

Attachment(s)

Information Disclosure Statement(s), PTO-1449, Paper No(s). _____ Interview Summary, PTO-413

Notice of Reference(s) Cited, PTO-892 Notice of Informal Patent Application, PTO-152

Notice of Draftsperson's Patent Drawing Review, PTO-948 Other _____

Office Action Summary

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over May et al (WO 98/05219) in view of Quaker Oats (GB 1327351) and Bechtel (3,738,847), further in view of Gutmann (2,421,199), Froebel et al (GB 2,194,125), Zitin (2,937,095), Dodge et al (3,385,712) and Vickers (GB 341,760), further in view of Ohba (EP 769252), Henkel (GB 1486634), Mandanas (WO 94/26606), Routh (2344,901) McMahon (GB 1583351), Erras (EP 675046), Hillebrand (Austral. 50797/96) and QP Corp (Jp 59-31677) and QP Corp (Jp 61-100174).

The rejection is essentially same for the reasons extensively detailed in the last Office action mailed 11/14/2002, paper no. 6. As noted previously, claims 1 and 6 differ from May et al only in the recitation that the outer phase is tubular, (if one construes tubular to be a hollow cylinder) because the outer phase of May et al is hollow but frusto-conical. A series of references were previously cited to show that it was notoriously old in the packaging art to provide edible or inedible products with various shaped inner and outer phases. Applicants have not conceded that the difference between the claims and the art taken as a whole was an obvious matter of design; i.e., the substitution of one geometrical shape for another geometrical shape. To further evidence the conventionality of an inner phase and a tubular outer phase and to emphasize applicants are not the first to provide this specific geometric configuration,

Gutmann, Froebel et al, Zitin, Dodge et al and Vickers, all previously cited but not applied, are relied on to teach that a tubular outer phase and inner core composite food is, of course, notoriously old. To modify May et al and substitute one conventional geometric configuration for the composite food for another conventional geometric configuration for the composite food would therefore have been unequivocally obvious. The remaining references are applied for the reasons given in the Office action mailed 11/14/02, paper no. 6. Note, e.g., that both Quaker Oats and Bechtel disclose a canned composite pet food that has an outer phase and an inner phase and the only real difference between the two and applicants' claim 1 is whether in the references one could call the outer phase tubular even though it fully encloses the inner phase. Note, too, the two references use applicants' filling technique.

All of applicants' remarks filed 2/19/03, paper no. 7 have been fully and carefully considered but are not fund to be convincing. Patentability is not predicated on the number of references applied, but what the art taken as a whole teaches. See. In re Gorman 18USPQ 2d, 1886. In fact, in In re Gorman, the Court noted that where teachings relied upon to show obviousness were repeated in a number of references, the conclusion of obviousness was strengthened. It is noted that applicants main reason for the composite product is to provide new and interesting appearances. May et al and the art taken as a whole does that. It is urged that the art taken as a whole does not teach a tubular outer phase specifically relating to food. This issue is hopefully now moot in view of the new ground of rejection. However, even if these new references were not applied, whether the secondary references were edible or inedible

would be irrelevant since they were only be relied on the teach conventional, obvious, geometric shapes. Finally, it is urged that applicants do not believe that the May products are suitable for use in larger cans. This urging is merely an opinion, not supported by any factual, probative, evidence. In any case, the urging is not convincing since Quaker Oats, for example, discloses tall containers. Note, too, applicants have not responded to the examiners query concerning the nature of the container of May et al. that was in the last Office action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Steven Weinstein whose telephone number is 703-308-0650. The examiner can normally be reached on Monday-Friday 7:00am to 3:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Milton Cano can be reached on 703-308-3959. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9310 for regular communications and 703-872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.

S. Weinstein/mn
May 20, 2003

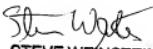

STEVE WEINSTEIN
PRIMARY EXAMINER 1761

EXHIBIT D



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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/833,314	04/10/2001	Christophe Dupont	112701-239	4353

29157 7590 11/14/2002
BELL, BOYD & LLOYD LLC
P. O. BOX 1135
CHICAGO, IL 60690-1135

EXAMINER
WEINSTEIN, STEVEN L

ART UNIT	PAPER NUMBER
1761	6

DATE MAILED: 11/14/2002

DUE: 2-14-03

Please find below and/or attached an Office communication concerning this application or proceeding.

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BELL, BOYD & LLOYD
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NOV 18 2002
ATTY: RMB
DOCKET # 112701-239

Office Action Summary

Application No. 09/833314	Applicant(s) DUPONT ET AL
Examiner S. WEINSTEIN	Group Art Unit 1761

—The MAILING DATE of this communication appears on the cover sheet beneath the correspondence address—

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, such period shall, by default, expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- Responsive to communication(s) filed on _____.
- This action is **FINAL**.
- Since this application is in condition for allowance except for formal matters, **prosecution as to the merits** is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 1 1; 453 O.G. 213.

Disposition of Claims

- Claim(s) 1-17 is/are pending in the application.
- Of the above claim(s) _____ is/are withdrawn from consideration.
- Claim(s) 1-17 is/are allowed.
- Claim(s) 1-17 is/are rejected.
- Claim(s) _____ is/are objected to.
- Claim(s) _____ are subject to restriction or election requirement.

Application Papers

- The proposed drawing correction, filed on _____ is approved disapproved.
- The drawing(s) filed on _____ is/are objected to by the Examiner
- The specification is objected to by the Examiner.
- The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119 (a)–(d)

- Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119 (a)–(d).
- All Some* None of the:
 - Certified copies of the priority documents have been received.
 - Certified copies of the priority documents have been received in Application No. _____.
 - Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a))

*Certified copies not received: _____.

Attachment(s)

- Information Disclosure Statement(s), PTO-1449, Paper No(s). 5 Interview Summary, PTO-413
- Notice of Reference(s) Cited, PTO-892 Notice of Informal Patent Application, PTO-152
- Notice of Draftsperson's Patent Drawing Review, PTO-948 Other _____

Office Action Summary

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over May et al (WO 98/05219) in view of Henkel (GB '634), Mandanas et al (WO 94/26606) and Routh ('901), further in view of applicant' admission of the prior art, McMahon (GB '351), Hillebrand et al (Australia 50797/96), Erras (EP 675046), QP Corp (Jp '677), QP Corp (Jp '174), Quaker Oats (GB '351), Bechtel ('847), May et al (WO '521) and Ohba (EP '252).

In regard to claim 1, May et al (WO 98/05219) discloses a canned pet food product having an upper end and a lower end, wherein the product comprises an outer phase which is substantially solid and which extends from the lower end to the upper end and which includes an edible source of carbohydrate and protein and an inner phase which extends from the lower end to the upper end and includes an edible source of carbohydrate and protein, the inner phase having an appearance different from the outer phase and extending within the outer phase. Note that May et al discloses that the phases or layers differ in appearance and texture (page 1, para. 1) and that the inner phase fills a recess in the outer phase that extends "entirely through" the base layer (page 9, col. 2) so that the inner phase will extend from the lower end to the upper end.

Claim 1 recites that the outer phase is "tubular". Apparently, the definition of a tube is a hollow cylinder. The outer phase of May et al is hollow but apparently not tubular, being more frusto-conical. Thus, claim 1 appears to differ from May et al in the shape of the outer phase; i.e. cylindrical vs. frusto-conical. Once it is known to provide a package with two or more

components in two or more different phases, the particular shape of the phases in the package is seen to have been an obvious matter of choice and/or design especially in view of the fact the art is replete with examples of varying cross sectional shapes of phases including tubular outer phases. The shape of the outer phase would also have been an obvious function of the particular conventional method of forming the two phases. Henkel is cited to show a multiphase package of viscous components which do not mix due to their viscosities and wherein the phases can be arranged in various patterns as a function of the conventional manner of filling including the use of one or more nozzles. One of the cross-sectional patterns, for example, shows a series of cylinders within an outer phase. Mandanas also teaches multiphased products packaged in a container wherein the phases are maintained separate due to their viscosities and wherein the phases can be given various cross-sectional patterns as a function of the method of filling the phases into the container. Among the various cross-sectional geometric patterns for the phases is provided by an outer tube and inner core(s). See e.g., fig. 10 in this regard. Note that Mandanas et al teaches the containers can be filled using a conventional coaxial filling nozzle (page 7, para. 1). Routh is another reference that teaches varying the cross-sectional patterns in a multi-phase product contained in a container. Note that the inner phase forms a cylindrical shape and is achieved by a filler placed near the bottom and moved upwardly through the outer phase as the inner phase is dispensed therein. To therefore modify the cross-sectional pattern of May et al and provide a tubular outer phase would have been obvious in view of the art taken as a whole teaching the conventionality of varying the cross-sectional patterns of multi-phase products as desired. McMahon, Hillebrand et al, Erras, the two QP Corp references, Quaker Oats, Bechtel, May et al (WO '521) and Ohba are all relied on as further evidence to show the art is replete with

example of packaged multi-phase products wherein the phases assume various patterns. Note, too, although claim 1 does not say so, the phases in all the references maintain themselves without mixing primarily due to their viscosity which is substantially the same to prevent mixing or where one is much more viscous (even solid) compared to the other phase to prevent mixing. In regard to claim 2, how the phases were formed in the container is not seen to affect the final product. The final product is an outer tubular phase and an inner phase which can be made by several different techniques including providing a removable or dissolvable partition, prehardening, etc. Thus, even what conventional technique used to form the bore would have been obvious. Applicants' disclosed technique which includes a filler tube inserted into the product is taught by the art taken as a whole. This rejection applies to the method claims as well. In regard to claims 3, 4, 5 and 8, May et al ('219), along with applicants admission of the prior art, disclose thermally gelled pet food compositions and formulated emulsion pet food compositions are conventional and both teach combinations of both types of pet food compositions and May et al ('219) is considered to show the particular sequence or order recited. In regard to the dimensions of the can, although it is not clear if May et al ('219) meets the limitations of the can height being at least as large as its diameter, the art, taken as a whole, discloses this dimensional relationship is, of course, conventional. See e.g. McMahon and Quaker Oats and Bechtel. Applicants are requested to confirm if May et al teaches this relationship.

The references cited on the USPTO 892 form are cited as additional art of interest to show various composite foods.

Any inquiry concerning this communication from the examiner should be directed to Steven Weinstein whose telephone number is 703-308-0650. The examiner can generally be reached on Monday-Friday 7:00am to 3:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Milton Cano can be reached on 703-308-3959. The fax phone numbers for the organization where this application is assigned are 703-872-9310 for regular communications and 703-872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application should be directed to the receptionist whose telephone number is 703-308-0661.

S. Weinstein/mn
November 8, 2002

Steve Weinstein
STEVE WEINSTEIN
PRIMARY EXAMINER 1761
11/13/02



OIP INFORMATION DISCLOSURE CITATION

(Use several sheets if necessary)

OCT 01 2001

ATTACH TO (MPEP 14)

ATTY DOCKET NO.

112701-2

SERIAL NO.

09/833,314

Dupont et al.

FILING

April 10, 2001

GROUP

1761

U.S. PATENT DOCUMENTS

EXAMINER INITIAL	DOCUMENT NUMBER	DATE	NAME	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE
SW	A1 1,952,101	3/1934	Snodgrass	—	—	
SW	A2 2,005,245	6/1935	Stover	—	—	
SW	A3 2,007,572	7/1935	Jancsy	—	—	
SW	A4 2,260,298	10/1941	Cowling	—	—	
SW	A5 2,334,052	11/1943	Wedin	—	—	
SW	A6 2,344,901	3/1944	Routh	—	—	
SW	A7 2,768,086	10/1956	Bliley	—	—	
SW	A8 2,975,732	3/1961	De Pasquale	—	—	
SW	A9 3,117,871	1/1964	Bahr et al.	—	—	
SW	A10 3,244,537	4/1966	Cease	—	—	
SW	A11 3,295,467	1/1967	Gropen	—	—	

FOREIGN PATENT DOCUMENTS

	DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUBCLASS	TRANSLATION
						YES NO
SW	A12 1 327 351	8/22/73	Great Britain	—	—	
SW	A13 1486634	9/1977	Great Britain	—	—	
SW	A14 1583351	1/1981	Great Britain	—	—	
SW	A15 7114281	12/10/81	Australia	—	—	
SW	A16 59-31677	2/1984	Japan	—	—	

OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, Etc.)

SW	A17	Cat Foods and Goods Guide 1992 Pet Supplies Guide, Cat Edition.
SW	A18	Cat Food and Goods Guide 1994 Pet Supplies Guide, Cat Edition.

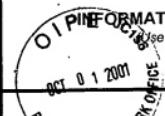
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U.S. PATENT DOCUMENTS

EXAMINER INITIAL	DOCUMENT NUMBER	DATE	NAME	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE
				—	—	
SW	B1 3,372,654	3/1968	Bell	—	—	
SW	B2 3,511,669	5/1970	Swartz et al.	—	—	
SW	B3 3,552,980	1/1971	Cooper et al.	—	—	
SW	B4 3,681,094	8/1972	Rogers et al.	—	—	
SW	B5 3,808,341	4/30/74	Rongey et al.	—	—	
SW	B6 3,738,847	6/1973	Bechtel	—	—	
SW	B7 3,922,353	11/25/75	Bernatovicz	—	—	
SW	B8 4,328,254	5/1982	Waldburger	—	—	
SW	B9 4,574,174	3/1986	McGonigle	—	—	
SW	B10 4,666,723	5/1987	Invernizzi et al.	—	—	
SW	B11 4,781,939	11/01/88	Martin et al.	—	—	

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	DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUBCLASS	TRANSLATION	
				YES	NO		
SW	B12 0 121 813	10/17/84	Europe	—	—		
SW	B13 61-100174	5/1986	Japan	—	—		
SW	B14 0 285 409	10/5/88	Europe	—	—		
SW	B15 93/24024	12/9/93	WIPO	—	—		
SW	B16 94/26606	11/1994	WIPO	—	—		

OTHER DOCUMENTS *(Including Author, Title, Date, Pertinent Pages, Etc.)*

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		DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUBCLASS	TRANSLATION	
							YES	NO
55	C5-	675046	10/1995	Europe	—	—		
56	C6	50797/96	10/1996	Australia	—	—		
57	C7	0 769 252	4/23/97	Europe	—	—		
58	C8	97/02760	1/30/97	WIPO	—	—		
59	C9	98/05218	2/12/98	WIPO	—	—		

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Notice of References Cited

Application No.

09/833314

Applicant(s)

DUPONT ET AL

Examiner

S.WERNSTEIN

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Page 1 of 1

U.S. PATENT DOCUMENTS

*	DOCUMENT NO.	DATE	NAME	CLASS	SUBCLASS
A	2421199	5/47	GUTMANN	426	284
B	5928705	7/99	MATTHEWS ET AL	426	92-
C	3289615	1/66	RATTNER	426	92
D	3511665	5/70	SWARTZ ET AL	426	92
E	2937095	5/60	ZITICH	426	92-
F	3385712	5/68	DODGE ET AL	426	284
G					
H					
I					
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M					

FOREIGN PATENT DOCUMENTS

*	DOCUMENT NO.	DATE	COUNTRY	NAME	CLASS	SUBCLASS
N	2194125	3/88	G BRITAIN	FROEBEL ET AL	426	92
O	63-177768	7/88	JAPAN	YG MATSUI	426	92
P	744312	6/70	BELGIUM	—	426	92
Q	63-33167	1/88	JAPAN	MATSUI	426	92
R	341760	1/31	G BRITAIN	VICKERS	426	284
S						
T						

NON-PATENT DOCUMENTS

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* A copy of this reference is not being furnished with this Office action.
(See Manual of Patent Examining Procedure, Section 707.05(a).)

EXHIBIT E



INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification 6 : A23K 1/10, 1/14, 1/18, A23P 1/08		A1	(11) International Publication Number: WO 98/05219 (43) International Publication Date: 12 February 1998 (12.02.98)
<p>(21) International Application Number: PCT/EP97/03884</p> <p>(22) International Filing Date: 17 July 1997 (17.07.97)</p> <p>(30) Priority Data: 60/023,475 6 August 1996 (06.08.96) US 60/036,733 24 January 1997 (24.01.97) US</p> <p>(71) Applicant (for all designated States except US): SOCIETE DES PRODUITS NESTLE S.A. [CH/CH]; P.O. Box 353, CH-1800 Vevey (CH).</p> <p>(72) Inventors; and</p> <p>(75) Inventors/Applicants (for US only): MAY, Stephen [US/US]; 1111 N. 49th Street, St. Joseph, MO 64506 (US); DING-MAN, Steven, E. [US/US]; 4601 Cheyenne Street, St. Joseph, MO 64503 (US); RAYNER, Luz [US/US]; 4904 Creek Crossing Drive, St. Joseph, MO 64507 (US).</p> <p>(74) Common Representative: McCONNELL, Bruce; Société des Produits Nestlé S.A., P.O. Box 353, CH-1800 Vevey (CH).</p>		<p>(81) Designated States: AL, AM, AT, AU, AZ, BB, BG, BR, BY, CA, CH, CN, CZ, DE, DK, EE, ES, FI, GB, GE, HU, IL, IS, JP, KE, KG, KP, KR, KZ, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, TJ, TM, TR, TT, UA, UG, US, UZ, VN, ARIPO patent (GH, KE, LS, MW, SD, SZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG).</p> <p>Published With international search report.</p>	
<p>(54) Title: LAYERED CANNED PET FOOD</p> <p>(57) Abstract</p> <p>A canned pet food product having a base layer and an upper layer. The base layer is formed of solid food pieces in a gravy and has a substantially conical recess formed into its upper surface. The gravy makes up about 20 % to about 40 % of the base layer. The upper layer is formed of a substantially solid foodstuff and fills the conical recess formed into the base layer. The substantially solid foodstuff provides about 20 % to about 80 % by weight of the pet food product.</p>			

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Layered Canned Pet food

Field of the Invention

5 This invention relates to a canned pet food product which contains layers of different appearance and texture. The invention also relates to a process for producing the canned pet food product.

Background to the Invention

10 Canned pet foods are traditionally available in two forms; meat loafs and chunk-type products. The meat loafs are particularly well known. They are usually prepared by comminuting raw meat material and mixing it with water, salt, spices, curing agents, gelling agents and, if necessary, fats to provide a batter. The batter is then heated. The heated batter is then filled into cans to form, after retorting and cooling, a meat loaf.

15 These meat loaf products are popular because they are easily manufactured, readily digested, very palatable to animals, and are readily formulated to contain necessary nutrients and trace elements. However they are in the form of a uniform, homogeneous mass which lacks the striated and chunky appearance of meat. This may be a disadvantage for pet foods since a meat-like appearance can greatly enhance consumer acceptability.

20 The chunk-type products overcome this difficulty since they are formulated emulsions which simulate the appearance of meat. One example of these formulated emulsions is described in US patent 4,781,939. The formulated meat emulsion described in the patent is produced by first forming a meat emulsion from a meat source. Dry ingredients such as dry proteinaceous materials (for example wheat gluten and soy flour), vitamins, minerals and the like are then mixed into the meat emulsion to provide a viscous emulsion. The viscous emulsion is then run through a high-speed emulsion mill in which the emulsion is rapidly heated to a temperature in the range of 102°C to 118°C. The emulsion leaving the emulsion mill is fed to a holding tube where the protein in the emulsion coagulates to form a solid emulsion product. This solid emulsion product is then cut into chunks. The chunks are highly striated and resemble natural meat chunks in appearance and texture.

30 Another example of these formulated emulsions is disclosed in US patent 5,132,137. However, in this process the viscous emulsion is heated to a temperature of 40 to 70°C in the emulsion mill; which is much lower than that in the process disclosed in US patent 4,781,939. The heated emulsion takes longer

to coagulate and is therefore held in a holding tube for a longer time. The emulsion is then formed into strands and baked in an oven at a core temperature of 70 to 95°C.

5 Canned pet food products which are a combination of the meat loafs and the chunk-type products are also known. These products are formed of a matrix of the meat loaf surrounding pieces of formulated emulsion products.

However there is a need for canned pet food products which have new and interesting textures and appearances to further stimulate consumer interest.

10 **Summary of the invention**

Accordingly, in one aspect, this invention provides a canned pet food product comprising:

15 a base layer comprising solid food pieces in a gravy and having a substantially conical recess formed into its upper surface, the gravy comprising about 20% to about 40% by weight of the base layer; and

an upper layer comprising a substantially solid foodstuff capable of supporting the base layer when the pet food product is inverted and filling the conical recess formed into the base layer, the substantially solid foodstuff comprising about 20% to about 80% by weight of the pet food product.

20 Often, after opening a can of pet food, the consumer shakes the contents out into the pet's bowl or dish. Therefore, what was the base layer becomes the upper layer in the pet's bowl or dish. The consumer is therefore presented with an attractive topping of solid food pieces in a gravy above a clearly defined layer of a substantially solid foodstuff, which includes a conical portion extending into the solid food pieces in a gravy.

25 The recess into the base layer may extend either partially through the base layer to be conical in shape or entirely through the base layer to be frusto-conical in shape. The upper layer may include an upper portion above and covering the upper surface of the base layer.

30 Preferably, the solid food pieces in the base layer are a formulated emulsion product having the striated appearance of natural meat. The formulated emulsion product preferably comprises about 65% to about 95% by weight of a meat material and about 5% to about 35% by weight of a proteinaceous material. If desired, the formulated emulsion product may be in the form of flakes.

35 The gravy preferably comprises water and about 2% to about 8% by weight of a starch; for example about 4% by weight of starch. The starch is

preferably a heat sensitive starch such that its viscosity increasing properties are reduced after being heated. In particular, it is preferred that the gravy has an initial viscosity in the range of about 300 to about 800 centipoise prior to retorting of the can but a lower viscosity after retorting. It is particularly preferred that the gravy have an initial viscosity of about 350 to about 450 centipoise; for example about 400 centipoise.

5 The base layer preferably has a moisture content of about 60% to about 70% by weight. It is particularly preferred that the base layer has a moisture content of about 63% to about 67% by weight; for example about 65% by weight.

10 The substantially solid foodstuff is preferably a gelled meat loaf, cooked rice, cooked noodles, or aspic, or mixtures thereof. The aspic may contain food pieces such as cooked vegetable pieces.

When the solid foodstuff is a gelled meat loaf, the upper layer preferably has a moisture content of about 70% to about 85% by weight.

15 During filling, the upper layer preferably has a viscosity in the range of about 1800 to about 4000 centipoise.

In another aspect, this invention provides a process for producing a canned pet food product having at least two layers, the process comprising:

20 filling a base layer comprising solid food pieces in a gravy into a can, the gravy having a viscosity in the range of about 300 to about 800 centipoise and forming about 20% to about 40% by weight of the base layer;

25 filling an upper layer into the can, the upper layer comprising a settable foodstuff having a viscosity in the range of about 1800 to about 2500 centipoise and, upon cooling, forming a substantially solid foodstuff, the settable foodstuff comprising about 20% to about 80% by weight of upper and base layers;

sealing and spinning the can for causing the base layer to flow up the sides of the can and forming a substantially conical recess into the upper surface of the base layer; and

30 retorting the sealed can.

In a yet further aspect, this invention provides a process for producing a canned pet food product having at least two layers, the process comprising:

filling a base layer comprising solid food pieces in a gravy into a can, the gravy having a viscosity in the range of about 300 to about 800 centipoise and forming about 20% to about 40% by weight of the base layer;

spinning the can about a vertical axis for causing the base layer to flow up the sides of the can and forming a substantially conical recess into the upper surface of the base layer;

5 filling an upper layer into the can, the upper layer comprising a settable foodstuff having a viscosity in the range of about 2500 to about 4000 centipoise and, upon cooling, forming a substantially solid foodstuff, the settable foodstuff comprising about 20% to about 80% by weight of upper and base layers;

sealing the can; and
retorting the sealed can.

10 Preferably the base layer is filled into the can to provide about 30% to about 50% by weight of the upper and base layers.

In a yet further aspect, this invention provides a canned pet food product having at least two layers and produced according to the process defined above.

15 **Detailed description of the Invention**

Embodiments of the invention are now described, by way of example only. To produce the pet food product, a mixture of solid food pieces in a gravy and a settable foodstuff must be separately prepared.

20 a) Preparation of the solid food pieces in gravy:

The mixture of solid food pieces in a gravy may be prepared by simply mixing together solid pieces of meat or other material, or both, and a gravy. The meat material may be any suitable meat source, for example, muscular or skeletal meat, meat by-products or a mixture of meat and meat by-products. The meat material may be in the form of chunks or may be in the form of flakes. However, if a meat material is used, it is preferred if the solid food pieces are a formulated emulsion product. Solid pieces of other material may also be used; such as cooked rice grains, pasta or noodles, vegetable pieces, and the like.

25 30 If a formulated emulsion product, is used, it may be produced by any suitable procedure, for example the procedures described in US patents 4,781,939 and 5,132,137. In these procedures, a meat material is formed into a meat emulsion; usually by grinding and then emulsifying blocks of the meat material.
35 The meat material may be any suitable source of animal protein; for example the muscular or skeletal meat of mammals, poultry, and fish or meat by-products

such as hearts, liver, kidneys, tongue and the like. The exact composition may be selected according to cost and the desired flavor. The meat material conveniently may be in frozen form prior to grinding. Alternatively or in addition, the meat material may be in the form of meat meals such as poultry meal, fish meal, red 5 meat meal and mixtures thereof. Again the exact composition may be selected according to cost and the desired flavor. Mixtures of any of the above may also be used. The emulsification may be carried out in any suitable equipment.

Usually a proteinaceous material is added to the emulsion to improve 10 emulsion stability and binding. The proteinaceous material may be a vegetable or animal protein source; for example wheat gluten, soy flour, soy protein 15 concentrates, soy protein isolates, egg proteins, whey, casein, etc. The exact choice will depend upon availability, cost and palatability. Usually about 5% to about 35% of the proteinaceous material is used.

If desired or required, fats may be added to the emulsion. Usually the 15 amount of fat in the emulsion must be controlled to facilitate processing and to obtain an acceptable product. However, the meat material may well contain the desired amount of fats and hence adjustment may not be necessary. Typically at this stage the emulsion contains a maximum fat level of about 25% by weight. Conveniently, the amount of fat in the emulsion is in the range of about 5% to 20 15% by weight; more preferably about 7% to about 12% by weight. The mass ratio protein to fat in the emulsion is preferably about 1:1 to about 7:1. If added, the fats may be any suitable animal fats; for example tallow, or may be vegetable fats.

Additional ingredients such as sugars, salts, spices, seasonings, flavoring 25 agents, minerals, and the like may also be added to the emulsion. The amount of additional ingredients used is preferably such that they make up about 1% to about 5% by weight of the formulated emulsion product.

Water may also be added to provide from about 45% to 80% by weight 30 moisture in the emulsion. If sufficient moisture is present in the meat material, water need not be added.

Once mixed, the emulsion is preferably fed through a vacuum stuffer, or similar de-aeration apparatus, to de-aerate the emulsion. This removes air which may otherwise cause disruption of the formulated emulsion product and reduce its meat-like appearance.

35 The emulsion is then fed to an emulsion mill which subjects the emulsion to rapid mechanical heating and shearing. Any suitable emulsion mill may be

used, for example the emulsion mill disclosed in US patent 5,132,137. Other suitable emulsion mills are commercially available under the trade name of Trigonal and may be obtained from Siefer Maschinenfabrik GmbH & Co KG, Bahnhofstrasse 114, Postfach 101008, Velbert 1, Germany.

5 The temperature of the emulsion is raised to the desired coagulation temperature in the emulsion mill in a few seconds. For example, the temperature may be raised to from about 100°C to about 120°C. Alternatively, the temperature may be raised to in the range of about 45°C to about 75°C as described in US patent 5,132,137. Usually the mechanical energy generated in
10 the emulsion mill will be sufficient to heat the emulsion but this may be supplemented by the injection of superheated steam.

15 The heated emulsion leaving the emulsion mill is then transferred to a holding tube. In the holding tube, the heated emulsion coagulates while moving slowly along the holding tube. The residence time of the heated emulsion in the holding tube is sufficient for the emulsion to have coagulated into a firm emulsion product upon reaching the exit of the holding tube.

20 The firm emulsion product leaving the holding tube is then transferred to a cutter where it is cut into chunks of size suitable for use in a pet food. The chunks may be subjected to flaking if desired.

25 The gravy or sauce is produced from water, starch and suitable flavoring agents and should comprise about 20% to about 40% by weight of the mixture of solid pieces and gravy. The amount of starch used is sufficient to provide a gravy with a viscosity of about 300 to about 800 centipoise; especially about 400 centipoise. Up to about 8% by weight of starch may be used to obtain this viscosity. The starch is preferably such that its viscosity increasing properties break down during retorting of the canned pet food. These starches, which are commonly known as modified starches for filling retorted foods, are commercially available from Staley Manufacturing Company (2200 E. Eldorado Street, Decatur, Illinois 62525, USA) and National Starch and Chemical
30 Company (10 Finderne Avenue, Bridgewater, New Jersey 08807).

In place of, or in addition to, the starch, one or more suitable gums may be incorporated into the gravy. Suitable gums are kappa-carrageenan, locust bean gum, guar gum and xanthan gum.

b) Preparation of the settable foodstuff:

When the substantially solid foodstuff is selected to be a gelled meat loaf, the settable foodstuff is a meat batter. The meat batter may be prepared by

5 emulsifying a suitable meat material to produce a meat emulsion. The meat material may be any suitable meat source, for example as described above. Suitable gelling agents, for example gums such as kappa-carrageenan, locust bean gum, guar gum and xanthan gum may be added to the meat emulsion. Usually no more than about 2% by weight of gum is needed.

10 Additional ingredients such as sugars, salts, spices, seasonings, flavoring agents, minerals, and the like may also be added to the meat emulsion. The amount of additional ingredients used is preferably such that they make up about 0.25% to about 5% by weight of the meat batter.

15 Water may also be added to the meat emulsion to provide from about 70% to about 85% by weight. If sufficient moisture is present in the meat material, water need not be added.

20 The meat emulsion is then heated to a temperature above about 65°C in a mixer-cooker. Steam may be injected into the meat batter if desired. The heated meat emulsion is then again emulsified to provide the meat batter and the meat batter maintained at a temperature above about 60°C until needed. At this stage, depending upon the canning process, the meat batter has a viscosity in the range of about 1800 to about 4000 centipoise. These viscosities may be obtained by suitably altering the amount or composition of the gum added to the meat batter.

25 Alternative, the substantially solid foodstuff may be cooked rice or noodles, or both. In this case, the settable foodstuff may be freshly cooked rice or noodles. Upon cooling, the freshly cooked rice or noodles form a substantially solid layer. If desired, suitable gelling or thickening agents, for example gums such as kappa-carrageenan, locust bean gum, guar gum and xanthan gum may be added to the rice or noodles. Usually no more than about 2% by weight of 30 gelling or thickening agent is needed.

35 Additional ingredients such as sugars, salts, spices, seasonings, flavoring agents, minerals, and the like may also be added to the rice or noodles. The amount of additional ingredients used is preferably such that they make up about 0.25% to about 5% by weight of the settable foodstuff.

35 Alternative, the substantially solid foodstuff may be an aspic; for example an aspic which contains cooked vegetable pieces. The aspic may be prepared as

is conventional. Additional ingredients such as sugars, salts, spices, seasonings, flavoring agents, minerals, and the like may also be added to aspic. The amount of additional ingredients used is preferably such that they make up about 0.25% to about 5% by weight of the aspic.

5

c) Canning:

The mixture of the solid food pieces and gravy and the settable foodstuff are then fed to suitable filling machines; one for filling the solid food pieces and gravy and one for filling the settable foodstuff. For filling the solid food pieces and gravy, a pocket filling is particularly suitable. Pocket fillers are commercially available; for example from Luthi Machinery and Engineering Co., Inc (1726 W. 180th Street, Gardena California, 90248, USA), Carruthers Equipment Company (1815 N. W. Warrenton Drive, Warrenton, Oregon 97146, USA) and Zilli & Bellini SPA (Via Benedetta, 85/A, 43100 Parma, Italy). Suitable filling machines for filling the settable foodstuff are commercially available from Hema USA Inc (426 W. Universal Circle, Sandy, Utah 84070, USA), PRC (2582 S. Tejon Street, Englewood, Colorado 80110, USA). During filling, the settable foodstuff should be maintained at a temperature or conditions to prevent gelling or setting.

A metered amount of the mixture of the solid food pieces and gravy is fed into each can entering the pocket filler in a defined layer comprising about 20% to about 80% of the volume or weight of the product. For example, the layer may make up about 30% to about 70% of the volume or weight of the product.

At this point the can may be spun about a vertical axis to cause the mixture of the solid food pieces and gravy to flow up the sides of the can and leave a substantially conical recess into its upper surface. If this is done, the mixture should have a viscosity in the range of about 2500 to about 4000 centipoise. Alternatively, the can may be fed directly to a separate filling machine. If this is done, the mixture should have a viscosity in the range of about 1800 to about 2500.

Once the cans reach the separate filling machine, a metered amount of the settable foodstuff is then fed onto the mixture of the solid food pieces and gravy. The can is then sealed. If the can was not spun prior to filling of the settable foodstuff, it is spun at this point. This spinning causes the mixture of the solid food pieces and gravy to flow up the sides of the can and leave a substantially



conical recess into its upper surface. The settable foodstuff fills the conical recess as it is formed. Due to the density and viscosity of the mixture of the solid food pieces and gravy and the density and viscosity of the settable foodstuff, clear and distinct layers are formed in the can despite the spinning. These layers 5 remain clear and distinct during seaming of the cans. After it has cooled, the settable foodstuff will form a firm, substantially solid foodstuff.

The cans are then retorted under conditions sufficient to effect commercial sterilization in the normal manner. Typically the cans are retorted at a temperature of about 115°C to about 125°C for about 30 to 100 minutes. During 10 the retorting operation, the starch in the gravy preferably breaks down such that the previously viscous gravy takes on the appearance of a thin, runny sauce.

The extent and size of the recess may be readily adjusted by adjusting the rotational speed of the cans during spinning and the length of time that they are spun. If spun sufficiently fast and long enough, especially if spun prior to filling 15 of the settable foodstuff, the recess may extend entirely through the base layer to take on a frusto-conical shape.

The cans produced by the process contain a product which comprises a lower layer made up of solid pieces of food in a thin sauce and having a substantially conical recess; and an upper layer of a substantially solid foodstuff. 20 The layers are clear and distinct and the product is visually attractive once removed from the can.

Example 1

25 a) Production of solid food pieces in gravy

Blocks of frozen meat made up of beef, pork, poultry, fish and meat by-products are cut into pieces of about 10 cm in size and the pieces are then ground in a meat grinder. The ground meat is transferred to a mixer in which it is heated 30 to a temperature of about 0°C. After mixing, the ground meat is fed into an emulsifier in which it is emulsified and heated to a temperature of about 20°C. The meat emulsion is then transferred to a mixer. A blend of dry proteinaceous material made up of a mixture of wheat gluten, soy flour and soy protein concentrate is added. Additives in the form of vitamins, minerals, flavoring 35 agents, sugars and salts are then added. At this stage, the emulsion is made up of about 77% by weight of meat materials, about 21% by weight of the

-10-

proteinaceous material and about 2% additives. The fat content is about 10% by weight and the moisture content is about 55% by weight.

The emulsion, at a temperature of about 35°C, is then pumped to an emulsion mill in which it is rapidly heated up to a temperature of about 107°C.

5 The hot emulsion is ejected from the emulsion mill into a holding tube. The emulsion moves slowly through the holding tube such that it is sufficiently cooled and coagulated upon exiting the tube. The coagulated product leaving the holding tube is then cut into cubes of about 2 cm dimension. The chunks have a highly striated, meat like appearance. The chunks are then cooled and flaked to

10 produce flakes of about 1 to about 2 cm size. The flakes are screened to remove small fragments.

A gravy is then prepared by mixing a modified starch, flavoring and coloring agents, and water. The gravy has a viscosity of about 400 centipoise. The mixture is heated to about 80°C and then blended with the flakes. The gravy provides about 34% by weight of the mixture of solid food pieces and gravy. The moisture content is about 65% by weight.

15

b) Production of meat batter

20 Blocks of frozen meat made up of beef, pork, poultry, fish and meat by-products are cut into pieces of about 10 cm in size and the pieces are then ground in a meat grinder. The ground meat is transferred to a mixer and heated. Vitamins, minerals, flavoring agents, salts and about 1% by weight of a gum mixture are added. The mixture is heated to about 75°C under mixing and maintained at this temperature. The meat batter has a viscosity of about 3000 centipoise.

25

c) Canning

30 The mixture of solid food pieces in gravy is transferred to a pocket filler obtained from Carruthers Equipment Company and filled into cans. The amount of the mixture of solid food pieces in gravy is selected to provide about 40% of the total product weight in the can. The cans are spun to cause the mixture to flow up the sides of the cans to just below the tops of the cans. The recess formed in the center of the mixture extends clear through to the base of the can.

35

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The cans are then transferred to a filling machine obtained from PRC. The remaining space in each can is filled with meat emulsion. During transfer to the filling machine, the mixture of solid food pieces and gravy retains its shape.

5 The cans are then seamed and retorted. A can is opened and turned out onto a plate. The product has a clearly defined lower layer made up of meat loaf topped by a layer of meat flakes in a thin sauce. The lower layer is frusto-conical in shape and projects to the upper surface of the upper layer.

Example 2

10

A mixture of solid food pieces and gravy is produced as described in example 1. A meat batter is also produced as described in example 1 except that the meat batter has a viscosity of about 2000 centipoise.

15 The mixture of solid food pieces in gravy is transferred to a pocket filler obtained from Carruthers Equipment Company and filled into cans. The amount of the mixture of solid food pieces in gravy is selected to provide about 40% of the total product weight in the can.

The cans are then transferred to a filling machine obtained from PRC. The remaining space in each can is filled with meat emulsion.

20

The cans are then seamed and spun to cause the mixture of solid food pieces and gravy to flow up the sides of the cans and form a recess in the center of the mixture. The cans are then retorted. A can is opened and turned out onto a plate. The product has a clearly defined lower layer made up of meat loaf topped by a layer of meat flakes in a thin sauce. The lower layer includes a conical projection which extends into the upper layer.

Example 3

30 The process of example 1 is repeated except that cooked rice is substituted for the flakes of formulated meat emulsion in the solid food pieces and gravy. A can of the product is opened and turned out onto a plate. The product has a clearly defined lower layer made up of meat loaf topped by a layer of rice in a thin sauce. The lower layer is frusto-conical in shape and projects to the upper surface of the upper layer.

35

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Example 4

5 The process of example 1 is repeated except that freshly cooked rice is used in place of the meat batter. A can of the product is opened and turned out onto a plate. The product has a clearly defined lower layer made up of cooked rice topped by a layer of meat flakes in a thin sauce. The lower layer is frusto-conical in shape and projects to the upper surface of the upper layer.

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Claims

1. A canned pet food product comprising:
a base layer comprising solid food pieces in a gravy and having a
5 substantially conical recess formed into its upper surface, the gravy comprising
about 20% to about 40% by weight of the base layer; and
an upper layer comprising a substantially solid foodstuff capable of
supporting the base layer when the pet food product is inverted and filling the
conical recess formed into the base layer, the substantially solid foodstuff
10 comprising about 20% to about 80% by weight of the pet food product.
2. A product according to claim 1 in which the recess into the base layer
extends entirely through the base layer to be substantially frusto-conical in shape.
- 15 3. A product according to claim 1 in which the solid food pieces in the base
layer are a formulated emulsion product having the striated appearance of natural
meat.
- 20 4. A product according to claim 3 in which the formulated emulsion product
is in the form of flakes.
5. A product according to claim 1 in which the gravy comprises water and
about 2% to about 8% by weight of a heat sensitive starch which undergoes a
reduction in its viscosity increasing properties during heating.
- 25 6. A product according to claim 1 in which the base layer has a moisture
content of about 60% to about 70% by weight.
- 30 7. A product according to claim 1 in the substantially solid foodstuff is a
gelled meat loaf, cooked rice, cooked noodles, or aspic, or mixtures thereof.
8. A product according to claim 1 in which the upper layer has a viscosity in
the range of about 1800 to about 4000 centipoise during filling of the upper layer
into the can.

9. A process for producing a canned pet food product having at least two layers, the process comprising:
 - filling a base layer comprising solid food pieces in a gravy into a can, the gravy having a viscosity in the range of about 300 to about 800 centipoise and
 - 5 forming about 20% to about 40% by weight of the base layer;
 - filling an upper layer into the can, the upper layer comprising a settable foodstuff having a viscosity in the range of about 1800 to about 2500 centipoise and, upon cooling, forming a substantially solid foodstuff, the settable foodstuff comprising about 20% to about 80% by weight of upper and base layers;
 - 10 sealing and spinning the can for causing the base layer to flow up the sides of the can and forming a substantially conical recess into the upper surface of the base layer; and
 - retorting the sealed can.
- 15 10. A process for producing a canned pet food product having at least two layers, the process comprising:
 - filling a base layer comprising solid food pieces in a gravy into a can, the gravy having a viscosity in the range of about 300 to about 800 centipoise and
 - 5 forming about 20% to about 40% of the base layer;
 - 20 spinning the can about a vertical axis for causing the base layer to flow up the sides of the can and forming a substantially conical recess into the upper surface of the base layer;
 - filling an upper layer into the can, the upper layer comprising a settable foodstuff having a viscosity in the range of about 2500 to about 4000 centipoise
 - 25 and, upon cooling, forming a substantially solid foodstuff, the settable foodstuff comprising about 20% to about 80% by weight of upper and base layers;
 - sealing the can; and
 - retorting the sealed can.

EXHIBIT F

PATENT SPECIFICATION

(11)

1 327 351

DRAWINGS ATTACHED

1 327 351 (21) Application No. 16496/72 (22) Filed 10 April 1972
 (31) Convention Application No. 136 754 (32) Filed 23 April 1971 in
 (33) United States of America (US)
 (44) Complete Specification published 22 Aug. 1973
 (51) International Classification A23K 1/10
 (52) Index at acceptance
 AZB J2 J3A3 J3A4 J5



(54) PROCESS OF PRODUCING EGG-IN-MEAT PET FOOD

(71) We, THE QUAKER OATS COMPANY a Corporation organized and existing under the laws of the State of New Jersey United States of America, of, 617 West 5 Main Street, Barrington, Illinois, United States of America, do hereby declare the invention, for which we pray that a patent may be granted to us, and the method by which it is to be performed, to be particularly described in and by the following statement:—

This invention relates to a pet food of the hash type which contains eggs in the mixture. More specifically, this invention 15 relates to an egg in meat pet food.

The present invention provides a packaged pet food comprising a center core of sterilized egg mixture, a surrounding medium which completely surrounds the 20 center core, said surrounding medium comprising a sterilized ground meat mixture, and a container containing the sterilized ground meat mixture, said container being hermetically sealed.

25 The present invention also provides a process for producing an egg in meat pet food comprising partially filling a container with a ground meat mixture, inserting a tube into the ground meat mixture, passing an egg mixture through the tube until the container is filled while at all times maintaining a layer of the ground meat mixture between the egg mixture and the container, removing the tube from the container, sealing 35 the container, and heating the sealed container to sterilize the ground meat mixture and egg mixture.

The nutritional requirements of a dog are based on several factors including the 40 size of the dog and the environment in which he lives. Although most commercial dog foods provide the basic calorie need, many such products could be improved by inclusion of additional protein therein.

45 A high quality protein diet has been
 [Price 25p]

found desirable for dogs. The use of eggs in their diet has long been advised by nutritionists for several reasons. Eggs contain an excellent balance of amino acids essential to growth and maintenance. Egg 50 protein is helpful in providing the nitrogen equilibrium in the adult dog. It is assumed that egg protein supplies the indispensable amino acid in approximately the equilibrium amounts for the metabolic needs of the 55 body. Therefore, there is a demonstrated advantage for providing a dog food containing significant quantities of eggs.

The concept of using eggs in dog food is not new. For instance, the idea is fairly 60 well discussed in U.S. Patent No. 3,561,972 wherein citric acid is used to accomplish the blending of eggs with meat. We have found, however, that all of the known processes for producing an egg and meat pet food left 65 something to be desired. Usually it is found that the egg either has some reaction with the standard can or else discolors when it comes in contact with the standard can. All known commercial processes for producing an egg and meat pet food product 70 have attempted to overcome this problem by placing some additive in either the meat or egg to prevent discoloring. We have found that we can overcome this problem 75 without the use of additives simply by maintaining a layer of meat between the egg and the container at all times.

It is an object of this invention to produce a process for producing an egg and 80 meat pet food.

It is another object of this invention to produce a new and novel product of the egg and meat variety.

The objects of this invention are accomplished by a process for producing an egg and meat pet food comprising partially filling a container with a ground meat mixture, inserting a tube into the ground meat mixture, passing an egg mixture through the 85 90

tube until the container is filled while at all times maintaining a layer of ground meat mixture between the egg mixture and the container, removing the tube from the 5 container, sealing the container, and heating the sealed container to sterilize the ground meat mixture and egg mixture.

The objects of this invention are further accomplished by the product comprising in 10 combination a center core of a sterilized egg mixture, a surrounding medium which completely surrounds the center core, said surrounding medium comprising a sterilized ground meat mixture and a container containing the sterilized ground meat mixture, said container being hermetically sealed.

We have found that it is desirable in our 15 process to fill a typical can about three-fourths of the way full with a proper meat mixture then insert a tube about one-fourth of the way from the bottom of the can and inject egg into the ground meat mixture while slowly pulling the tube out of the can until the container is full. At 20 this point the ground meat mixture completely encloses the egg mixture and the can can be sealed and retorted to sterilize its contents.

This invention may be more fully described but should not be limited by the 25 accompanying drawings wherein we have used Figure 1 to illustrate an empty can 11 sitting atop a platform 12 ready to be filled;

30 Figure 2 illustrates the same can being filled about three-fourths capacity with a ground meat product 13 from a standard filling device 14;

35 Figures 3 and 4 illustrate the same can approximately three-fourths of the way full as it passes down the processing line;

In Figure 5 the can has moved underneath a filling tube 15 and the platform 12 has been raised until the tube exit is 40 in the mid portion of the ground meat 13. At this point an egg mixture 16 is injected into the ground meat.

In Figure 6 it is illustrated that the platform is lowered as the egg is injected causing the egg to fill the center portion of the 45 ground meat mixture and thereby causing the ground meat mixture to rise to the top of the can;

In Figure 7 the egg supply tube has been 50 removed and the can is shown in its returned position substantially filled with ground meat mixture which completely encircles the injected egg mixture; and

In Figure 8 a lid 17 has been placed 55 on the can to hermetically seal it and the can is then passed to retorting.

The following example more clearly 60 illustrates the process and product of our invention.

65 A ground meat mixture was prepared by

admixing 45 parts by weight water, 9 parts by weight ground bone, 5 parts by weight ground horsemeat, 5 parts by weight ground chicken, 10 parts by weight meat by-products (spleen, lungs, gullet) and typical 70 vitamins and minerals commonly added to pet food. The mixture was thoroughly mixed and ground until it would pass through a 3/8 inch plate. The mixture was next heated until the meat therein was substantially cooked.

An egg mixture was prepared by admixing 5 parts by weight dried egg, 0.3 parts by weight, vegetable gum (Keltrol, Kelco Company, Chicago, Illinois), "Keltrol" is 80 a Registered Trade Mark 15 parts by weight water. This mixture was slurried together at a temperature between 70°F. and 80°F. The mixtures were then conveyed to the appropriate portions of the 85 apparatus as shown in the accompanying drawing. A can was filled about ninetenths full with about 9 parts by weight of the ground meat mixture and a tube was inserted into the can and 1 part by weight 90 of the egg mixture was inserted therethrough to fill the can. The can was then sealed and retorted at about 276°F. for three-fourths hours.

It is to be understood that the egg to 95 ground meat ratio is left to the description of the processor, but we prefer a product having a major portion thereof of meat. It is also to be understood that any of the common meaty pet food mixtures may 100 be used as the meat of this invention including prepared ground meat by itself. It is also to be understood that any of the commonly used egg mixtures may be used in this invention.

It is also to be understood that the 105 times and temperatures used in the canning procedure as well as the sealing of the can are standard to the pet food industry and may be altered within standard commercial usage.

The process of this invention is new and unique and provides an extremely simple procedure for producing a new and unique product. The process utilizes a simple 115 procedure to avoid the expense and irritation of having to supply costly additives to a product. The product is an extremely pleasing and nutritional product for pet food consumption.

120 WHAT WE CLAIM IS:—

1. A packaged pet food comprising a center core of a sterilized egg mixture, a surrounding medium which completely surrounds the center core, said surrounding medium comprising a sterilized ground meat mixture, and a container containing the sterilized ground meat mixture, said container being hermetically sealed.
2. A process for producing an egg in 130

meat pet food comprising partially filling a container with a ground meat mixture, inserting a tube into the ground meat mixture, passing an egg mixture through the tube 5 until the container is filled while at all times maintaining a layer of the ground meat mixture between the egg mixture and the container, removing the tube from the container, sealing the container, and heating 10 the sealed container to sterilize the ground meat mixture and egg mixture.

3. A packaged pet food, according to claim 1 substantially as herein described.

4. A process according to claim 2 for producing an egg in meat pet food substantially as herein described.

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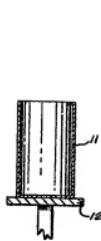


FIG. 1

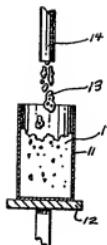


FIG. 2

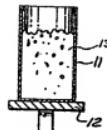


FIG. 3

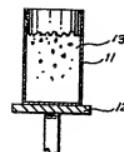


FIG. 4

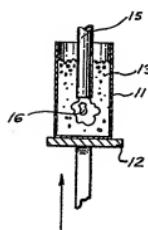


FIG. 5

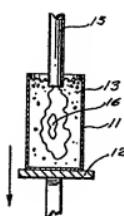


FIG. 6



FIG. 7

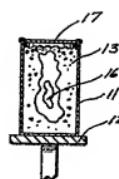


FIG. 8

EXHIBIT G

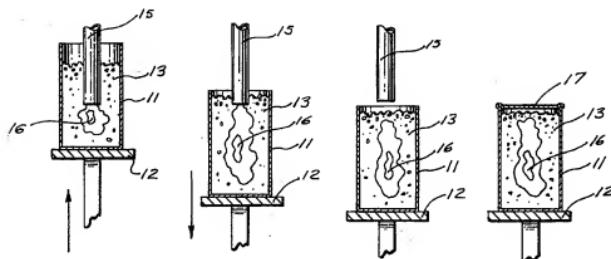
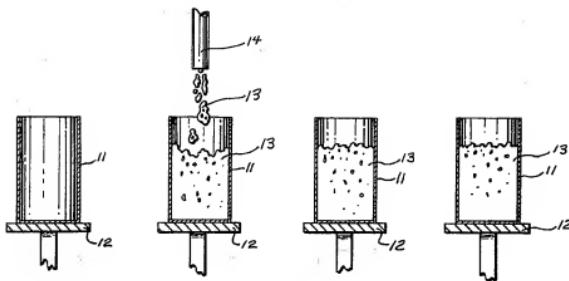
June 12, 1973

P. J. BECHTEL

3,738,847

PROCESS FOR PRODUCING A CANNED EGG IN MEAT PET FOOD

Filed April 23, 1971



INVENTOR:
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SUMMARY OF THE INVENTION

PROCESS FOR PRODUCING A CANNED EGG IN MEAT PET FOOD

Peter J. Bechel, East Lansing, Mich., assignor to The Quaker Oats Company, Chicago, Ill.
Filed Apr. 23, 1971, Ser. No. 136,754
Int. Cl. A22c 18/00; A23b 1/00

U.S. Cl. 99-187

1 Claim

ABSTRACT OF THE DISCLOSURE

A process is disclosed for producing an egg in meat pet food wherein a container is partially filled with a ground meat mixture, a tube is inserted into the ground meat mixture, an egg mixture is passed through the tube until the container is filled while at all times maintaining a layer of ground meat mixture between the egg mixture and the container, removing the tube from the container, sealing the container, and heating the sealed container to sterilize the ground meat mixture and egg mixture.

A new product is described comprising in combination a center core of a sterilized egg mixture, a surrounding medium of a sterilized ground meat mixture which completely surrounds the sterilized egg mixture, and a container which contains the ground meat mixture and which is hermetically sealed.

BACKGROUND OF THE INVENTION

Field of the invention

This invention relates to a pet food of the hash type which contains eggs in the mixture. More specifically, this invention relates to an egg in meat pet food.

Description of the prior art

The nutritional requirements of a dog are based on several factors including the size of the dog and the environment in which he lives. Although most commercial dog foods provide the basic calorie need, many such products could be improved by inclusion of additional protein therein.

A high quality protein diet has been found desirable for dogs. The use of eggs in their diet has long been advised by nutritionists for several reasons. Eggs contain an excellent balance of amino acids essential to growth and maintenance. Egg protein is helpful in providing the nitrogen equilibrium in the adult dog. It is assumed that egg protein supplies the indispensable amino acids in approximately the equilibrium amounts for the metabolic needs of the body. Therefore, there is a demonstrated advantage for providing a dog food containing significant quantities of eggs.

The concept of using eggs in dog food is not new. For instance, the idea is fairly well discussed in U.S. Pat. No. 3,561,972 wherein citric acid is used to accomplish the blending of eggs with meat. I have found, however, that all of the known processes for producing an egg and meat pet food left something to be desired. Usually it is found that the egg either has some reaction with the standard can or else discolors when it come in contact with the standard can. All known commercial processes for producing an egg and meat pet food product have attempted to overcome this problem by placing some additive in either the meat or egg to prevent discoloring. I have found that I can overcome this problem without the use of additives simply by maintaining a layer of meat between the egg and the container at all times.

It is an object of this invention to produce a process for producing an egg and meat pet food.

It is another object of this invention to produce a new and novel product of the egg and meat variety.

The objects of this invention are accomplished by a process for producing an egg and meat pet food comprising partially filling a container with a ground meat mixture, inserting a tube into the ground meat mixture, passing an egg mixture through the tube until the container is filled while at all times maintaining a layer of ground meat mixture between the egg mixture and the container, removing the tube from the container, sealing the container, and heating the sealed container to sterilize the ground meat mixture and egg mixture.

The objects of this invention are further accomplished by the product comprising in combination a center core of a sterilized egg mixture, a surrounding medium which completely surrounds the center core, said surrounding medium comprising a sterilized ground meat mixture and a container containing the sterilized ground meat mixture, said container being hermetically sealed.

I have found that it is desirable in my process to fill a typical can about three-fourths of the way full with a proper meat mixture then insert a tube about one-fourth of the way from the bottom of the can and inject egg into the ground meat mixture while slowly pulling the tube out of the can until the container is full. At this point the ground meat mixture completely encloses the egg mixture and the can can be sealed and retorted to sterilize its contents.

BRIEF DESCRIPTION OF THE DRAWING

This invention may be more fully described but should not be limited by the accompanying drawings wherein I have used FIG. 1 to illustrate an empty can 11 sitting atop a platform 12 ready to be filled;

FIG. 2 illustrates the same can being filled about three-fourths capacity with a ground meat product 13 from a standard filling device 14;

Figs. 3 and 4 illustrate the same can approximately three-fourths of the way full as it passes down the processing line;

In FIG. 5 the can has moved underneath a filling tube 15 and the platform 12 has been raised until the tube exit is in the mid portion of the ground meat 13. At this point an egg mixture 16 is injected into the ground meat;

In FIG. 6 it is illustrated that the platform is lowered as the egg is injected causing the egg to fill the center portion of the ground meat mixture and thereby causing the ground meat mixture to rise to the top of the can;

In FIG. 7 the egg supply tube has been removed and the can is shown in its returned position substantially filled with ground meat mixture which completely encircles the injected egg mixture; and

In FIG. 8 a lid 17 has been placed on the can to hermetically seal it and the can is then passed to retorting.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

The following example more clearly illustrates the process and product of my invention.

A ground meat mixture was prepared by admixing 45 parts by weight water, 9 parts by weight ground bone, 5 parts by weight ground horsemeat, 3 parts by weight ground chicken, 10 parts by weight meat by-products (spleen, lungs, gullet) and typical vitamins and minerals commonly added to pet food. The mixture was thoroughly mixed and ground until it would pass through a $\frac{3}{8}$ inch plate. The mixture was next heated until the meat therein was substantially cooked.

An egg mixture was prepared by admixing 5 parts by weight dried egg, 0.3 part by weight vegetable gum, 15 parts by weight water. This mixture was stirred together at a temperature between 70° F. and 80° F. The mixtures were then conveyed to the appropriate portions of the apparatus as shown in the accompanying drawing. A can was filled about nine-tenths full with about 9 parts by weight of the ground meat mixture and a tube was inserted into the can and 1 part by weight of the egg mixture was inserted therethrough to fill the can. The can was then sealed and retorted at about 276° F. for three-fourths hour.

It is to be understood that the egg to ground meat ratio is left to the discretion of the processor, but I prefer a product having a major portion thereof of meat. It is also to be understood that any of the common meaty pet food mixtures may be used as the meat of this invention including prepared ground meat by itself. It is also to be understood that any of the commonly used egg mixtures may be used in this invention.

It is also to be understood that the times and temperatures used in the canning procedure as well as the sealing of the can are standard to the pet food industry and may be altered within standard commercial usage.

The process of this invention is new and unique and provides an extremely simple procedure for producing a new and unique product. The process utilizes a simple procedure to avoid the expense and irritation of having to supply costly additives to a product. The product is an extremely pleasing and nutritional product for pet food consumption.

Having fully described this new and unique invention, I claim:

1. A process for producing a canned egg in meat pet

food comprising partially filling a can with a ground meat mixture, inserting a tube into the ground meat mixture, passing an egg mixture slurry through the tube until the can is filled while at all times maintaining a layer of the ground meat mixture between the egg mixture and the can, removing the tube from the can, sealing the can, and heating the sealed can to sterilize the ground meat mixture and egg mixture whereby a layer of ground meat maintains the egg mixture out of direct contact with the can thus preventing any discoloration of said mixture.

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HYMAN LORD, Primary Examiner

U.S. CL. X.R.

99-108, 113

EXHIBIT H

May 27, 1947.

H. A. GUTMANN
PROCESS FOR PRESERVING EGGS

2,421,199

Filed July 22, 1944

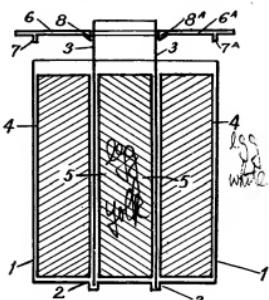


FIG 1.

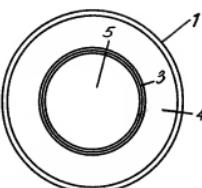


FIG 2.

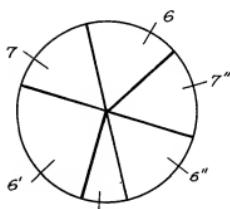


FIG 3.

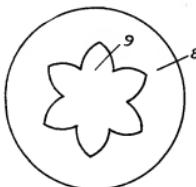


FIG 4.

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2,421,199

PROCESS FOR PRESERVING EGGS

Hans A. Gutmann, Vineland, N. J.

Application July 22, 1944, Serial No. 546,082

2 Claims. (Cl. 99—161)

1

This invention relates to a method of preserving eggs, and has particular relation to a method in which the whites and yolks of eggs are preserved in coagulated or hard-boiled condition.

The main object of my present invention is to convert the eggs into a condition in which they can be easily and safely shipped and stored for an unlimited period of time.

Another object of my invention is to preserve the eggs in the form of products which, with regard to their chemical composition and taste, highly resemble fresh egg products.

A further object of my invention consists in providing a method of preserving eggs, which is simple and inexpensive and may be easily carried out in a relatively simple device or apparatus.

Other objects and the advantages of the invention will be apparent to those skilled in the art from the following specification and claims, and the appended drawings which illustrate, by way of example, some embodiments of my invention, and in which

Figure 1 is a diagrammatical sectional view of a container or can adapted to be used in carrying out my invention;

Figure 2 is a top view of the container shown in Figure 1, and

Figures 3 and 4 are diagrammatical views serving to illustrate some modified embodiments of my invention.

According to my invention, the whites and yolks of eggs are removed from the shells, are heated to a suitable temperature until they coagulate, and are sterilized and hermetically sealed in containers.

According to the preferred embodiment of my invention, egg white 4 is filled into a cylindrical container or can 1 shown in Figures 1 and 2. The bottom of this can 1 is provided with a circular groove 2, adapted to receive a cylindrical insert 3, which, after insertion into said groove, separates the interior of the can into an inner cylindrical and an outer annular space. The raw egg white is filled into said outer space and the container thus filled is then subjected to heat until the egg white is sufficiently coagulated to keep its shape. Insert 3 is now removed, the central space in the container is filled with raw egg yolk 5, and heat is applied again until the egg white and yolk are coagulated or hard-boiled. The container thus filled and treated is then sterilized by heat and provided with an air-tight seal in the customary manner used in preparing canned food products.

Instead of using a cylindrical insert, as shown in Figure 1, inserts of other shape, such as the

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inserts diagrammatically shown in Figures 3 and 4 may be used substantially in the above described manner. In these figures 6, 6', 6'' and 7, 7', 7'' and 8 and 9, denote the coagulated egg white and egg yolk, respectively.

The container may be provided with a cover 8A, having a central hole and projections 7A and 8A.

Coagulation by heating of the egg white and yolk may also be carried out in separate containers or molds. For example, in the container shown in Figure 1, the egg white may be introduced into and coagulated in the outer annular space; Insert 3 may then be removed and cylindrically shaped egg yolk coagulated in a separate cylindrical mold corresponding in its dimensions to the central space of container 1, may then be introduced into said central space. Or both, the egg white and egg yolk may be coagulated by heating in suitably shaped and dimensioned molds, for example in an annular mold and a registering cylindrical mold. The coagulated and shaped egg white and the cylindrically shaped egg yolk may then be assembled in a suitable container or can in which they are sterilized and hermetically sealed.

It will be understood by those skilled in the art that my invention is not limited to the above described embodiments and details may be carried out with various modifications. For example, instead of a cylindrical container or can, containers or cans of other suitable shape, such as of rectangular shape may be used. The coagulated egg white and yolk may have shapes different from those described above and illustrated in the drawings. The use of grooves 2 shown in Figure 1 is not indispensable, as inserts resting on the bottom of the container may also be employed. Instead of having the coagulated egg white arranged as an outer ring surrounding the coagulated egg yolk, this arrangement may be reversed, i.e., by using an outer ring of coagulated egg yolk surrounding the coagulated egg white. The ratio of egg white and egg yolk in the container may correspond to the natural ratio in eggs or may be different. Preserving means may also be added to the egg white or yolk, if desired. The container may consist of metal or other suitable material such as glass or ceramic material. These and other modifications may be made without departing from the spirit of my invention as defined in the appended claims. The size of the container used and the amount of egg white and yolk contained therein may vary within wide limits.

55 The egg whites and yolks may also be coag-

EXHIBIT I

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A23L 1/31(52) Domestic classification (Edition J):
A2B 317 341 399 KP9

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(58) Field of search

A2B
Selected US specifications from IPC sub-class A23L

(54) Co-extruded semi-moist food product

(57) A co-extruded semi-moist food product is provided which is especially suited for use as a dog treat. The product comprises an inner core which is at least partially covered by at least one distinguishable layer, e.g. one which has a different colour, texture or composition.

GB 2 194 125 A

SPECIFICATION

Co-extruded semi-moist food product

5 This invention relates to a co-extruded semi-moist food product and, in particular, to a co-extruded semi moist pet food product which is especially suited for use as a dog treat. Pet foods intended for consumption by dogs or cats are currently manufactured in three distinct types, that is, canned foods, dry or semi-dry foods and semi-moist or intermediate moisture products.

10 Canned foods consist essentially of meat or mixtures of meat and cereal having a meat-like texture and have a high moisture content, typically in the range of 70-80%. Such canned foods generally have a high animal acceptance, probably because of their natural moisture and high meat content which produce an attractive texture, consistency and aroma. However, the high moisture content of such products requires that they be heat sterilised in hermetically sealed 15 containers, such as cans, to inhibit spoilage and thus provide a reasonably long shelf-life. Heat sterilisation of this type is a costly process and thus increases the cost of the product. Moreover, since such products readily support the growth of microbiological organisms in non-sterile conditions, it is essential that the content of such a can be consumed quickly or stored under refrigeration once it has been opened otherwise the product will deteriorate very rapidly.

15 Dry or semi-dry foods consist of mixtures of meat and/or meat meal and cereals and have a low moisture content, typically below 12%, and consequently a hard and crunchy texture. Such foods generally have a very high nutritional and calorific value and are thus capable of providing a complete balanced diet for the animal. Moreover, they have a good storage life because of their low moisture content and can thus be packed in relatively inexpensive packaging, such as 20 paper or cardboard containers. On the other hand, such foods generally have a low animal palatability because of their hard, dry texture. Indeed, such foods are often completely rejected unless suitable liquids are added prior to consumption and, in some cases, even liquid addition does not increase palatability because it causes disintegration of the product into a slushy, unappealing condition which may still be rejected by the animal. Attempts have been made to 25 increase the palatability of such dry and semi-dry products by coating them with a meat slurry. However, although this technique has improved the animal acceptance of such products, the 30 texture of such coated products remains hard and therefore far from fully acceptable.

25 Semi-moist or intermediate moisture products consist of mixtures of meat, protein meals and cereals and have a moisture content in the range of 15-35% which gives such products a soft, moist texture similar to that of natural cooked meat. These products generally have a high calorific density and good nutritional value. Preservation of such products is achieved by the addition of humectants, such as sugars and polyhydric alcohols, particularly propylene glycol, which bind water and thus reduce the water activity of the products to a level at which bacteria are unable to grow, and an antimycotic agent, such as potassium sorbate, which inhibits the 35 growth of yeasts and moulds. The use of propylene glycol as a humectant is particularly beneficial in that propylene glycol also has antimycotic properties and is very effective in killing many viruses including influenza, polio and FMD viruses. Moreover, it has been found that at the pH and water activity level of such semi-moist products, the propylene glycol acts synergistically with the potassium sorbate to provide a bacteriostatic effect. However, although the animal 40 acceptance of such semi-moist products is higher than that of dry foods, the added preservatives are not palatable to some animals.

45 In addition to the three categories outlined above, pet foods, particularly dog foods, can be divided into two further subclasses, that is, foods designed as main meals and foods designed as treats, that is, snacks that can be given to a pet between main meals, for instance, as a reward. Main meal foods have been produced in all three of the types described above. However, traditionally, treats have been manufactured mainly as dry products, such as biscuits, or chocolate drops. Some semi-moist treats have been produced but these have not made any significant impact on the market.

50 Dry products, as discussed above, have a low animal palatability and chocolate drops, although having a high animal acceptance, have a low nutritional value which may deter health-conscious pet-owners from giving such items to their pet. Clearly, canned goods are unsuitable for use as treats because they are messy to handle, due to their high moisture content, and must be consumed quickly once the can has been opened, due to the storage problems discussed above, hence they do not lend themselves to distribution in small quantities. Semi-moist products are clearly easier to handle and store than canned foods. However, as discussed above, known semi-moist foods are not palatable to some animals because these animals can readily detect the preservatives in the product.

55 It is thus an object of the present invention to provide a highly palatable pet food which may be used as a treat, has good storage and handling characteristics and has a high nutritional 60 value.

↓ According to the invention there is therefore provided a co-extruded semi-moist food product comprising an inner core at least partially covered by at least one distinguishable layer. It is preferred that the inner core be rich in vitamins and minerals, preferably containing sufficient vitamins and minerals to satisfy the requirements for adult maintenance of the consumer. When the consumer is to be a dog, it is preferred that the inner core contains 0.2-0.6% sumer. When the consumer is to be a dog, it is preferred that the inner core contains 0.2-0.6% by weight of a suitable vitamin and mineral mix. It is also preferred that the inner core has a soft texture and is of a contrasting colour with respect to the or each covering layer. Preferably, the food product has an outer layer containing 35-55% by weight of meat or meat by-products and, more preferably, 50-55%. It is also preferred that the outer layer has a meat-like surface texture and a fibrous overall texture and is a dark red-brown colour. In its most preferred form the food product comprises an inner core and a single outer layer, the ratio by weight of the inner core to the outer layer preferably being 2:3. Preferably, the inner core and outer layer contain the following ingredients on a dry weight basis:

	<u>% of Inner core</u>	<u>% of Outer core</u>	15
15			
Meat and meat by-products:	20 - 35%	35 - 55%	
20 Farinaceous products:	40 - 55%	15 - 35%	20
Edible oils:	2 - 7%	2 - 7%	

It is also preferred that the edible oils are vegetable oils. Preferably, the food product further includes 15-25% by weight of the whole product of at least one humectant which is preferably selected from sugar, salt and propylene glycol. It is also preferred that the food product further includes 0.2-0.5% by weight of the whole product of an antimycotic agent, preferably potassium sorbate. It is further preferred that the food product be in the form of a cylinder or flattened cylinder and have a moisture content in the range of 15-25% by weight or, more preferably, 18-22% by weight. According to the invention there is also provided a method of manufacturing a food product of the type described above which includes the step of co-extruding the inner core and the or each layer. Some embodiments of the present invention are illustrated in the following examples. All percentages are by weight unless otherwise specified.

EXAMPLE 1Ingredients

		<u>% of Inner Core</u>	5
5	<u>Inner Core</u>		
	Meat and meat by-products	25.00	
	Farinaceous products	47.00	
10	Edible Oils	5.00	10
	Humectants	19.80	
	Potassium sorbate	0.30	
15	Glycerol	2.00	15
	Colourings	0.50	
	Vitamins	0.20	
20	Minerals	0.20	20
	<u>Outer Layer</u>	<u>% of Outer Layer</u>	
25	Meat and meat by-products	35.00	25
	Farinaceous products	34.05	
	Edible Oils	5.00	
30	Humectants	19.80	30
	Potassium sorbate	0.30	
	Glycerol	2.00	
35	Additional fibre	0.50	35
	Casein	3.00	
	Colourings	0.15	
40	Flavourings	0.20	40

The meat intended for the inner core was taken in a frozen state and subjected to pre-breaking before being passed through a Laska mincer fitted with a 5mm plate. The minced meat was then transferred to a Wolf King mixer/mincer fitted with a 3mm plate where it was blended with the other ingredients to form a dough and then minced. The ingredients of the outer layer were treated in an exactly similar way to form a second minced dough and the two doughs were then fed into a co-extruder and extruded onto a moving belt in the form of a strip having a width of 4cm and a depth of 1cm. The strip was baked by passing it on the belt through a tunnel oven at temperatures in the order of 160° to 220°C and then cooled. The cooled strip was then cut into smaller strips of one metre in length using a guillotine and the cut strips collected and slit into 1cm long pieces using rotary knives. The pieces were then packaged in units of 150g containing about twenty-five pieces for retail as a dog treat.

The finished product had a moisture content of 20% and consisted of an off-white core with a soft texture encased in a tubular, dark red-brown outer layer having a rippled surface and a fibrous texture similar to that of natural cooked meat.

EXAMPLE 2Ingredients

5	<u>Inner Core</u>	<u>% of Inner Core</u>	5
	Meat and meat by-products	25.00	
10	Farinaceous products	47.00	10
	Edible Oils	5.00	
	Humectants	19.80	
15	Potassium sorbate	0.30	15
	Glycerol	2.00	
	Colourings	0.50	
20	Vitamins	0.20	20
	Minerals	0.20	
	<u>Outer Layer</u>	<u>% of Outer Layer</u>	
25	Meat and meat by-products	50.00	25
	Farinaceous products	21.05	
30	Edible Oils	3.00	30
	Humectants	19.80	
	Potassium sorbate	0.30	
35	Glycerol	2.00	35
	Additional fibre	0.50	
	Casein	3.00	
40	Colourings	0.15	40
	Flavourings	0.20	
45	The procedure of Example 1 was repeated using the above ingredients except that the cooled strip was cut into 8cm long bars weighing 40-45g each which were then individually packaged for retail as a dog treat.		
	The final product had a moisture content of 20% and consisted of an off-white core with a soft texture encased in a tubular, dark red-brown outer layer having a rippled, slightly sticky 50 surface and a fibrous texture.		

EXAMPLE 3Ingredients

		% of Inner Core	5
5	<u>Inner Core</u>		
	Meat and meat by-products	25.00	
10	Farinaceous products	47.00	10
	Edible Oils	5.00	
	Humectants	19.80	
15	Potassium sorbate	0.30	15
	Glycerol	2.00	
	Colourings	0.50	
20	Vitamins	0.20	20
	Minerals	0.20	
	<u>Outer Layer</u>	% of Outer Layer	25
25	Meat and meat by-products	50.00	
	Farinaceous products	19.67	
30	Edible Oils	5.00	30
	Humectants	19.80	
	Potassium sorbate	0.30	
35	Glycerol	2.00	35
	Additional fibre	0.45	
	Casein	2.33	
40	Colourings	0.15	40
	Flavourings	0.20	
	Raising Agent	0.10	

45 The procedure of Example 1 was repeated using the above ingredients.

The final product had a moisture content of 20% and consisted of an off-white core with a soft texture encased in a tubular, dark red-brown outer layer having a rippled surface, fibrous texture and meaty aroma.

50 In the above Examples, the term "meat" is used not only to refer to the flesh of cattle, swine and sheep but also to the flesh of other mammals, poultry and fish. The term "meat by-products" refers to those non-rendered parts of the carcasses of slaughtered animals such as liver, kidney, heart, spleen, tongue, trimmings, lungs and skins and meat meals made from, for instance, ground bones, tendons and the like.

The term "farinaceous products" is used to refer to foodstuffs containing a high proportion of 55 starch and/or starch-like materials such as cereal grains and meals or flours obtained by grinding cereal grains such as corn, oats, wheat, barley, maize, and rice. It also includes some leguminous plants such as soybeans, navy beans and the like and their derivatives such as soya flour.

The "edible oils" may be vegetable oils such as those obtained from soybeans, sunflower seeds, safflower seeds, cotton seed, rape seed or linseed, or may be derived from animal fats. 60 Vegetable oils are preferred because their composition helps to balance the fatty acids present in the final product. Also, many vegetable oils contain linoleic acid which is important for the maintenance of a glossy coat for dogs.

The term "humectants" is used to describe compounds which possess the ability to bind water and thus reduce the water activity of the final product to a level at which bacteria are 65 unable to grow. Examples of such compounds include sugar, salt and polyhydric alcohols, such

as propylene glycol. The use of propylene glycol is particularly advantageous because, as previously discussed, it acts synergistically with the antimycotic agent potassium sorbate to provide a bacteriostatic effect.

Glycerol may be included in both the inner core and outer layer ingredients because it has the 5 dual effect of improving the texture of the final product and aiding extrusion. Additional fibre, for instance, in the form of a cellulose derivative, may be added to the outer layer to increase the fibrofity of that layer and thus produce a more meat-like texture.

To ensure that the final product supplies a complete and nutritionally balanced diet, vitamins and minerals are added to the inner core and casein to the outer layer. Ideally, minerals and 10 vitamins should be added in a quantity sufficient to meet the requirements for adult maintenance of the animal for which the product is intended. Casein, which is a protein obtained from milk, is added because it contains different amino acids to those found in farinaceous products and thus enables a correctly balanced protein profile to be obtained.

Normal food additives such as colourings and flavourings may also be added to increase the 15 palatability of the final product. Suitable colourings include titanium dioxide and iron oxide. In some cases, it may also be desirable to add a raising agent such as sodium or ammonium bicarbonate.

Comparative palatability tests were also carried out between two-layer products of the present invention, produced according to Example 1 and a leading conventional meat based dog treat 20 known to have high palatability.

In these tests, thirty-eight dogs, comprising twenty-six West Highland White Terriers, seven Cairn Terriers, four Dachshunds and one Labrador, were offered a conventional treat and a treat according to the present invention and the first eaten was recorded.

A total of forty-eight choice tests were carried out with ten dogs undertaking the choice on 25 two separate occasions. On forty occasions the treat of the present invention was eaten first, on six occasions the conventional treat was eaten first and on two occasions both treats were refused.

Thus, it would appear that the products of the present invention have a high palatability and are greatly preferred by dogs to the conventional treats. Unlike conventional semi-moist products, the dogs did not seem to be deterred by the presence of the necessary preservatives 30 and it is thought that this is because the smell of the preservatives is disguised by the relatively high concentration of meat and meat by-products in the outer layer.

It will of course be understood that the present invention has been described above purely by way of example, and modifications of detail can be made within the scope of the invention. For 35 instance, although the present invention has been specifically described in the context of pet foods, particularly dog treats, and is especially suited for such use, it will of course be understood that the food products of the present invention may also be formulated for human consumption.

40 CLAIMS

1. A co-extruded semi-moist food-product comprising an inner core at least partially covered by at least one distinguishable layer.

2. A food product according to claim 1 in which the inner core contains 0.2—0.6% by weight of a vitamin and mineral mix.

45 3. A food product according to claim 1 or claim 2 in which the inner core has a soft texture.
4. A food product according to any preceding claim in which the inner core is of a contrasting colour with respect to the or each layer.

5. A food product according to any preceding claim which has an outer layer containing 35-55% by weight of meat or meat by-products.

50 6. A food product according to claim 5 in which the outer layer contains 50-55% by weight of meat or meat by-products.

7. A food product according to claim 5 or claim 6 in which the outer layer has a meat-like surface texture.

8. A food product according to any one of claims 5, 6 and 7 in which the outer layer has a 55 fibrous texture.

9. A food product according to any one of claims 5 to 8 in which the outer layer is a dark red-brown colour.

10. A food product according to any preceding claim which comprises an inner core and a single outer layer.

60 11. A food product according to claim 10 in which the ratio by weight of the inner core to the outer layer is 2:3.

12. A food product according to claim 10 or claim 11 in which the inner core and outer layer contain the following ingredients on a dry weight basis:

	<u>% of Inner core</u>	<u>% of Outer core</u>	
5	Meat and meat by-products: 20 - 35%	35 - 55%	5
	Farinaceous products: 40 - 55%	15 - 35%	
	Edible oils: 2 - 7%	2 - 7%	
10			
	13. A food product according to claim 12 in which the edible oils are vegetable oils.		
	14. A food product according to claim 12 or claim 13 which further includes 15-25% by weight of the whole product of at least one humectant.		
	15. A food product according to claim 14 in which the or each humectant is selected from		
15	15 sugar, salt and propylene glycol.		
	16. A food product according to any one of claims 12 to 15 which further includes 0.2-0.5% by weight of the whole product of an antimycotic agent.		
	17. A food product according to claim 16 in which the antimycotic agent is potassium sorbate.		
20	18. A food product according to any preceding claim in the form of a cylinder or flattened cylinder.		
	19. A food product according to any preceding claim which has a moisture content in the range of 15-25% by weight.		
	20. A food product according to claim 19 in which the moisture content is 20-22% by weight.		
25	21. A method of manufacturing a food product according to any preceding claim which includes the step of co-extruding the inner core and the or each layer.		
	22. A food product substantially as hereinbefore described and with reference to Examples 1, 2 and 3.		
30	23. A method of manufacturing a food product substantially as hereinbefore described and with reference to Examples 1, 2 and 3.		

Published 1988 at The Patent Office, State House, 66/71 High Holborn, London WC1R 4TP. Further copies may be obtained from The Patent Office, Sales Branch, St Mary Cray, Orpington, Kent BR5 3RD. Printed by Burgess & Son (Abingdon) Ltd. Con. 1/87.

EXHIBIT J

May 17, 1960

A. ZITIN

2,937,095

FOOD PRODUCT AND METHOD OF MAKING THE SAME

Filed Aug. 26, 1958

2 Sheets-Sheet 1

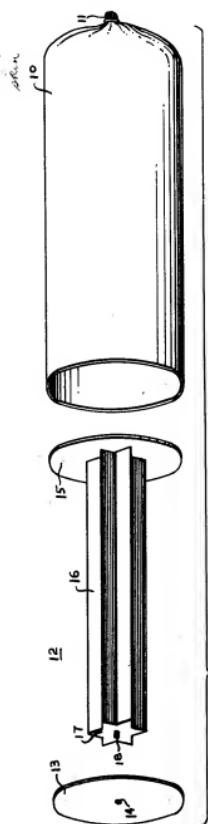


Fig. 1.

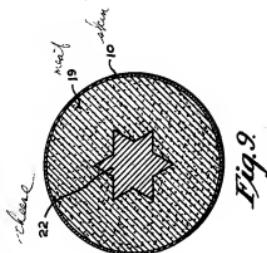


Fig. 2.

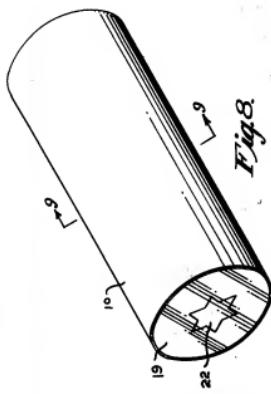


Fig. 3.

INVENTOR
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BY *Arnold Zitin*
ATTORNEY

May 17, 1960

A. ZITIN

2,937,095

FOOD PRODUCT AND METHOD OF MAKING THE SAME

Filed Aug. 26, 1958

2 Sheets-Sheet 2



Fig. 2.

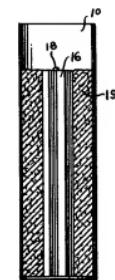


Fig. 3.

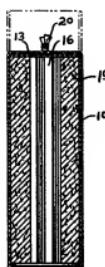


Fig. 4.

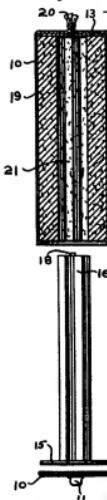


Fig. 5.

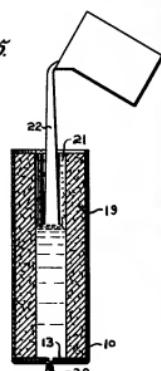


Fig. 6.

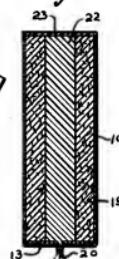


Fig. 7.

INVENTOR.

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United States Patent Office

2,937,095

Patented May 17, 1960

1

2,937,095

FOOD PRODUCT AND METHOD OF MAKING THE SAME

Arnold Zitlin, Wynnewood, Pa., assignor to Royalist Provision Company, Philadelphia, Pa., a corporation of Pennsylvania

Application August 26, 1958, Serial No. 757,235

4 Claims. (Cl. 99—174)

This invention relates to the method of and apparatus for making filled meat products. More particularly, this invention relates to the method of an apparatus for making a combined meat and cheese product in which the cheese portion is completely surrounded by the meat. In the past combination meat and cheese products have been made in which meat and cheese in the final product occupy adjacent positions to each other, but heretofore the known methods and apparatus have not been capable of producing a product in which the cheese was completely surrounded by the meat. Accordingly, it is a primary object of my invention to provide a novel method of and apparatus for making a meat-surrounded cheese product.

It is another object of my invention to provide a novel method of and apparatus for making a meat-surrounded cheese product which utilizes very simple and inexpensive apparatus.

Still another object of my invention is to provide a novel method of and apparatus for making a meat-surrounded cheese product by the use of which novel designs may be made to appear when the product is viewed in cross-section, so that the displayed product presents an interesting and attractive appearance to the purchasing consumer.

These and other objects will appear more fully hereinafter from a reading of the following specification when taken in conjunction with the several figures, wherein:

Figure 1 illustrates an exploded view of the apparatus utilized in making the novel meat and cheese product.

Figures 2 through 7 illustrate the successive steps of the method employed in making the product. Figures 2 through 5 illustrate the steps associated with forming a hollow meat sheathing into which the filler will be placed. Figures 6 and 7 illustrate the filling of the meat sheathing with a cheese filler to form the final product.

Figure 8 illustrates a perspective view of the final combined meat and cheese product.

Figure 9 illustrates a cross-sectional view of the combined product of Figure 8, and is taken along the lines 9—9 of that figure.

In the several figures like elements are denoted by like reference numerals.

Referring now to Figure 1, there are seen a skin or casing 10 of generally cylindrical shape which is closed at one end by a clip 11 and which is open at the opposite end. The casing 10 is of the type commonly employed for packaging lunch meat of various kinds, as for example baloney, which meats prior to being cooked are stuffed into the casing, after which the open end of the casing is closed as by tying. Immediately to the left of the casing 10 is seen a two-part mold 12 which comprises a free-end plate 13 centrally apertured as at 14, and a similar end plate 15 secured to an elongated form 16 having a closed end 17 and a centrally located stud 18 projecting from the surface of the closed end 17. The end plates 13 and 15 are seen to be of the same

2

size and shape as the interior cross-sectional area of the casing 10, so that when they are inserted into the casing in the manner to be described the casing fits tightly about the periphery of the end plates.

5 It will be understood, of course that casings of shapes other than that illustrated may just as readily be employed in practicing the method to be described, and that the only modification to the apparatus which is required for such different shaped casing is that the end plates 13 and 15 shall be of the same size and shape as the casing interior when viewed in cross-section. For example, a casing of square cross-section will require the use of square cross-section end plates. Moreover, although the elongated form 16 is illustrated as being of a six-pointed star shape when viewed in cross-section, other shapes may just as readily be employed, as for example circular or square or triangular configurations. Moreover, instead of using a single elongated form such as that shown as the element 16, a plurality of spaced forms 20 may just as readily be employed. Each of the spaced forms would of course be secured at one end to the fixed plate 15 and at the free-ends would be provided with the equivalents of the stud 18. When such a plurality of elongated forms are employed, then necessarily the free-end plate 13 would be suitably apertured to receive the plurality of studs for the purpose of holding the plurality of forms in proper position while the meat was being cooked.

Referring now to Figures 2 through 7, in that sequence, it is seen in Figure 2 that the elongated form 16 and fixed end plate 15 have been inserted into the casing 10 so that the fixed end plate 15 abuts the closed end of the casing and the elongated form 16 is approximately centrally located within the interior of the casing 10. Referring now to Figure 3, it is seen that the casing 10 has been stuffed with meat 19, as for example uncooked baloney, which completely fills the interior of the casing on all sides of the form 16 up to the level of the closed end 17. The meat 19 may be stuffed in the casing 10 by any of the well-known methods, as for example by the use of a feed horn. Referring now to Figure 4, it is seen that after the meat 19 has been placed in the casing, the free-end plate 13 is inserted with its under side in contact with the closed end 17 of the elongated form 18 and with the meat. The end plate 13 is so placed within the casing that the stud 18 on the elongated form 16 projects through the aperture 14. The open end of the casing 10 is now pulled up tightly and tied securely as at 20, the end plate 13 preventing the elongated form 16 from its position within the casing.

The entire casing, and hence the meat stuffed within it, is now cooked for an appropriate length of time. After the cased meat has been cooked and cooled, the clipped end of the casing 10 is slit all the way around its periphery and then removed so that the fixed end plate 15 secured to the form 16 is exposed. The fixed end plate 15 and attached form 16 are then withdrawn, thereby leaving a longitudinal star-shaped hollow opening 21 within the interior of the cased cooked meat. Figure 5 illustrates the cut away clipped end of the casing 10 and the withdrawn form 16. Withdrawal of the form 16 is readily accomplished by lubricating the surfaces thereof prior to the meat filling operation, as for example with fat or cooking oil. The end plate 13 of course remains within the casing 10.

Referring now to Figure 6, it is seen that the meat filled casing 10 has been inverted so that the open end of the hollow longitudinally extending central opening 21 created by the withdrawal of the form 16 presents in an upward direction. Molten cheese, as 22, may be now

EXHIBIT K

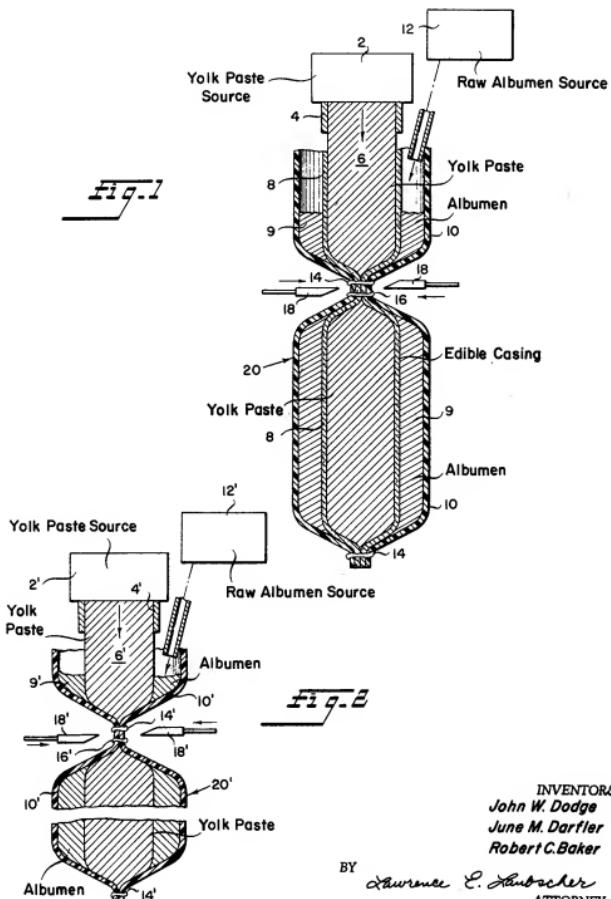
493,744
May 28, 1968

J. W. DODGE ET AL

3,385,712

METHOD OF MAKING AN EGG PRODUCT

Filed Oct. 7, 1965



BY

John W. Dodge
June M. Darfler
Robert C. Baker
Lawrence E. Habscher
ATTORNEY

3,385,712

METHOD OF MAKING AN EGG PRODUCT
John W. Dodge, Ithaca, June M. Darffer, Locke, and
Robert C. Baker, Groton, N.Y., assignors to Cornell
Research Foundation, Inc., Ithaca, N.Y., a corporation
of New York

Filed Oct. 7, 1965, Ser. No. 493,744

4 Claims. (Cl. 99-113)

ABSTRACT OF THE DISCLOSURE

A cooked egg roll product including a central egg yolk portion, and an outer egg white portion arranged concentrically about said egg yolk portion. During manufacture, the core portion is formed by extruding a yolk paste at least fifty percent of which, by volume, comprises completely coagulated yolk, the remainder of said paste comprising incompletely coagulated yolk.

This invention relates generally to an egg product, and to methods of efficiently and inexpensively producing the same. For example, the invention may be characterized by the provision of a central core consisting of a paste of wholly or partially cooked egg yolk about which is concentrically arranged a layer of albumen contained in a substantially impervious container. The packaged egg product, when refrigerated at a temperature of approximately 35° F. to 45° F., has a shelf life on the order of three months, and is particularly suitable for institutional feeding, commercial applications and domestic consumption.

Hard-cooked eggs are a food item common in the consumer diet. They are used for garnishes, salads, sandwiches, and as a luncheon item. Hard-cooked eggs are, however, only a semi-convenient item because of the cooking and peeling necessary in preparation, particularly in the institutional market. Attempts have been made, therefore, to produce a hard-cooked egg roll packaged in film which would represent enough convenience to both the housewife and the institutional trade to actually increase the sales of eggs.

In the prior art of egg roll manufacture, two general methods have been employed.

According to a known first method, high quality raw eggs are broken out of the shells into a trough or tube. These eggs pass down the tube into a bag (a substantially impervious container) with a diameter of approximately that of an egg. Plural eggs are thus placed in a bag, and the bag is clipped shut. The yolks of the eggs remain reasonably centered if the eggs are of uniformly high quality. The roll is then cooked at approximately 190° F. for twenty to twenty-five minutes, after which it is cooled slowly and stored. The shelf life of such a roll is up to three months and can only be attained if the cooking is accomplished after sealing the bag. Once the cooked egg white is subject to unpackaged handling, it perishes quickly. The disadvantages of this method of manufacture are (1) the labor involved in checking for yolks broken in the process, which would spoil the appearance of a whole roll, and (2) the requirement that only high quality eggs, graded for size, can be used.

A second method of producing the egg roll involves the use of a first tube arranged in concentrically-spaced relation within a second tube. As disclosed in the Gutmann Patent No. 2,421,199, the space between the tubes is filled with egg white that is then cooked. The first tube is then removed and egg yolk is placed into the space within the first tube, after which the whole product is cooked. In the product produced by this method, the egg yolk was found to be rubbery and flavorless; furthermore, since the re-

sulting egg roll must be packaged after cooking, the product has a relatively short shelf life. The process is laborious and is confined to batch process methods. The present invention was developed to provide an improved method for producing a hard-cooked egg roll product, which method avoids the above and other drawbacks encountered in the prior art, particularly in regard to labor requirements and egg sizes to be utilized.

The primary object of the present invention is to provide a method of manufacturing an improved egg roll product, which method comprises the steps of wholly or partially cooking unbroken egg yolks, grinding or mashing the yolks into a thick paste, forming the paste into a central core arranged in spaced relationship relative to the walls of a substantially impervious container, filling the space about said core with uncooked albumen, hermetically sealing the container, and cooking the albumen to effect coagulation and solidification thereof. In the process wherein the unbroken yolks are completely cooked, for example, in a liquid bath, on the order of 10 to 40% by volume of uncooked yolk may be mixed with the cooked yolk during the aforementioned pasting step. Furthermore, in the formation of the yolk paste from either the wholly or partially cooked yolk, other food additives—for example, seasonings, deviling constituents, meats and the like—may be mixed into the paste.

According to a more specific object of the invention, the yolk paste core may be forced into an edible casing about which the albumen layer is subsequently formed. The entire product is completely enclosed in a flexible, synthetic plastic substantially impervious hermetically sealed container, whereby the food package may be stored in a refrigerated condition for a period up to about three months.

Another object of the invention is to provide an egg roll product of improved texture and flavor having a central core consisting of a cooked yolk paste with or without seasonings or other food products, an annular layer of coagulated albumen arranged concentrically about said core, and a substantially impervious flexible synthetic plastic container completely enclosing said roll. In accordance with the preferred embodiment of the invention, the yolk paste core is forced into an edible casing (having a collagen base, for example) that separates the core from the annular albumen layer.

It is still another object of the present invention to provide a new and improved egg product by forming a paste from previously unbroken egg yolks which are partially cooked and using said thick yolk paste in a food product.

Other objects and advantages of the invention will become apparent from a study of the following specification, when considered in the light of the accompanying drawing, in which:

FIG. 1 schematically illustrates one method of forming an egg roll product in accordance with the present invention, using made of an edible casing between the yolk and white portions; and

FIG. 2 illustrates a second method wherein the edible casing is omitted.

In accordance with the subject invention raw uncooked eggs are broken and separated into their albumen and unbroken yolk components either manually or by commercially available egg separating apparatus. The untreated albumen (egg white) is pumped to a storage container for subsequent use.

The separated egg yolks are cooked and made into a paste. According to a first modification of the invention, the yolks are thoroughly cooked by dropping the same into an oil or water bath at a temperature of approximately 190° F. to 240° F. for a period of six to eight

a period less than about six minutes to effect incomplete coagulation thereof, whereby the yolk is only approximately 50 to 80% hard cooked; forming the yolk into a thick extrudable paste; extruding the yolk paste downwardly to form a generally elongated vertical core; arranging a vertical open-topped impervious container in substantially concentrically spaced relation about said core, said container having a closed bottom; filling, by gravity, the space between said core and said container with uncooked albumen; ¹⁰

closing the top of the container to define a hermetically sealed package; and cooking the resultant product to effect coagulation of the components thereof.

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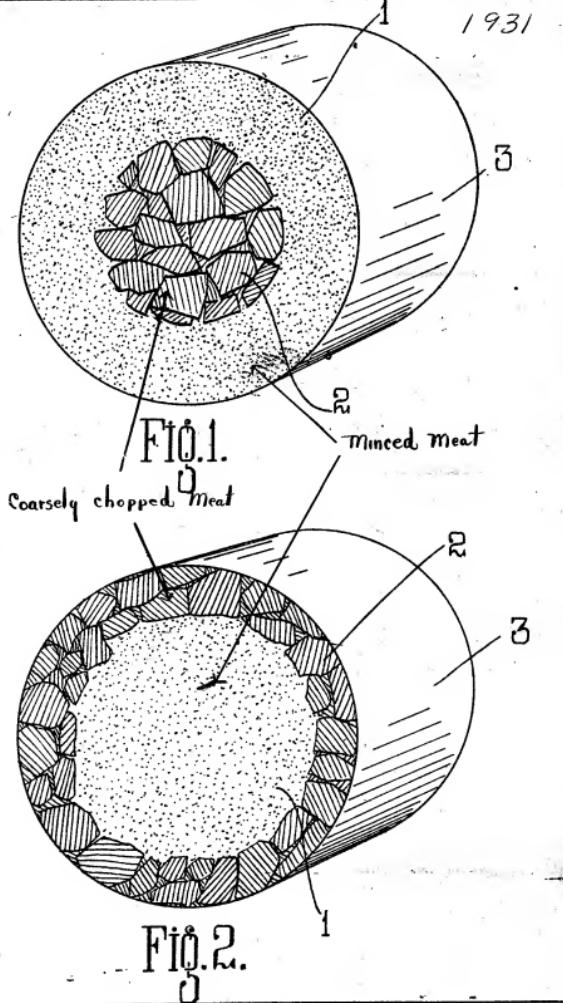
ELONEL M. SHAPIRO, *Primary Examiner.*

EXHIBIT L

38-11
3/6 99-108

341,760 COMPLETE SPECIFICATION British 1 SHEET

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426/284

PATENT SPECIFICATION



Application Date: Feb. 28, 1930. No. 6687/30.

341,760

Complete Accepted: Jan. 22, 1931.

1931

COMPLETE SPECIFICATION.

RECORDED

Improvements in the Manufacture of Meat Rolls.

I, HERB. EY VICKERS, of Barnfield, Bury New Road, Prestwich, in the county of Lancaster, British Subject, do hereby declare the nature of this invention and in what manner the same is to be performed, to be particularly described and set forth in and by the following statement:

This invention relates to improvements in the manufacture of meat rolls and the expression meat is to be understood as including butchers meat, such as beef or veal, as well as pork, fish or the like with or without added ingredients of animal or vegetable origin such as egg, tomato or the like.

The object of the invention is to produce a meat roll of more attractive character than those hitherto made. It is customary to manufacture meat rolls either wholly from meat paste with or without other ingredients or wholly from coarsely chopped or sliced meat. Rolls formed of such pieces or slices of meat are quite different in appearance and have a taste quite different from those formed of meat paste. The method of the present invention results in the production of a meat roll combining the different appearances and different palatable effects of these two known types of roll. The expressions "meat paste" and "coarsely chopped or sliced meat" as herein employed include compositions having the character of these but containing such other ingredients as may be desirable.

I am aware that it has been proposed to manufacture sausages having fancy designs in cross section by employing variously coloured meats. I am aware that it has also been proposed in the manufacture of biscuits, fancy pastry, confectionery and other paste or dough foodstuffs, sausages, pharmaceutical products and the like, to enclose one or more layers of dough within an outer layer, or to sandwich them upon each other. So far as I am aware, however, it has not previously been proposed to prepare a composite roll containing coarsely chopped or sliced meat and meat paste in the manner claimed hereinafter.

As is known the texture of a foodstuff

has an important bearing on its taste and palatability. Chopped or sliced meat has a relatively coarse texture whereas minced or finely shredded meat has a fine texture, resulting in a significant difference in taste. By manufacturing a meat roll in the manner described hereinafter the core has a texture different from that of the shell and the resulting product is very attractive.

According to the present invention the method of manufacture consists in forming a shell of meat paste or coarsely chopped or sliced meat and then inserting a core of coarsely chopped or sliced meat or of meat paste respectively so as to form a compound roll. The shell may suitably be formed by applying the ingredient thereof to the interior wall of a hollow vessel, such as a cylindrical mould and then pouring or running the ingredient of the core in the hollow centre so formed. The ingredients of the shell or core or of both may be such that they are somewhat plastic or semi-liquid when warm or hot but set more firmly when cooled. The shell may thus be formed warm and allowed to harden by cooling, the core then being inserted warm and allowed to set to form the composite roll. Gelatine is a suitable ingredient for enabling this result to be secured.

Meat rolls prepared according to the present invention are illustrated in the accompanying drawings which show the novel appearance of the products.

The figures are perspective sectional views;

Fig. 1 shows a shell of meat paste and Fig. 2, a core of meat paste.

In the drawings 1 is the meat paste, 2 the coarsely chopped or sliced meat and 3 the surface of the roll which may be covered in any suitable or attractive manner as by toasted bread crumbs.

The meat paste may be formed by finely minced or pounded meat or fish ^{or} the like with suitable additions of tomato, bread, spices, flavourings or other ingredients.

The coarsely chopped or sliced meat may be beef, veal, ham or other suitable

EXHIBIT M



(12)

EUROPEAN PATENT APPLICATION

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(30) Priority: 20.10.1995 JP 272476/95

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(54) Pet food packed in container

(57) A pet food packed in a hermetically sealed container (2) in which two or more types of food (A-B) prepared substantially from different materials are sorted within one and the same container (2)

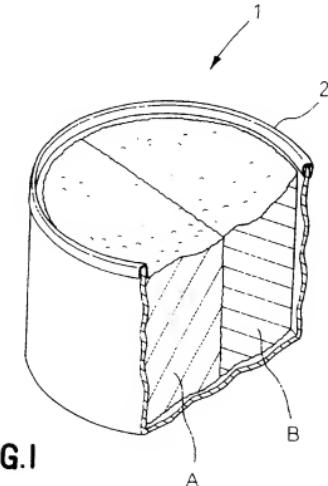


FIG. I

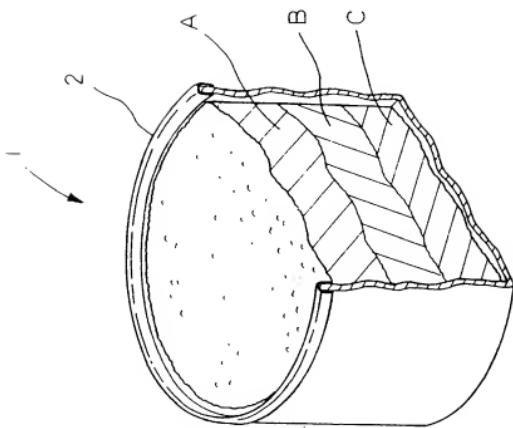


FIG. 2

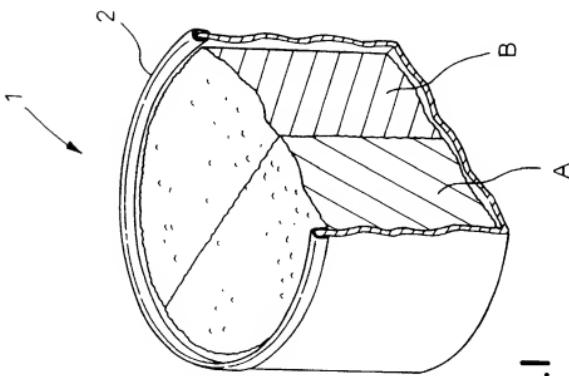


FIG. 1

EXHIBIT N

4/26/90

HENKEL

1486634

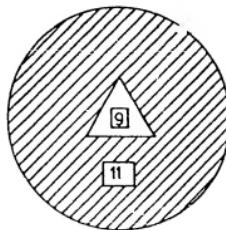
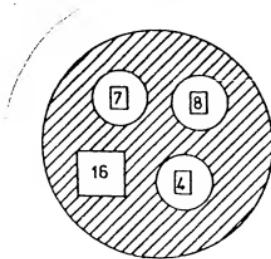
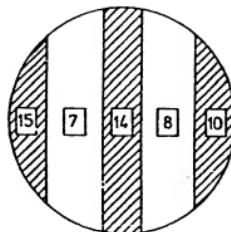
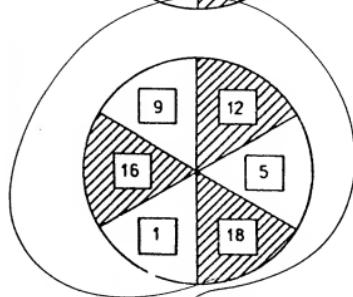
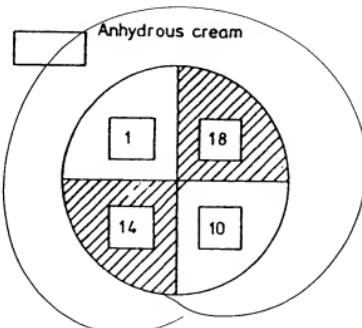
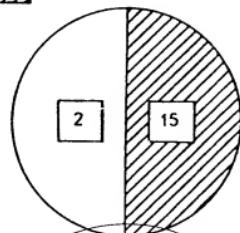
COMPLETE SPECIFICATION

1 SHEET

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the Original on a reduced scale*



Fat-free gel



PATENT SPECIFICATION

(11) 1 486 634

1 486 634

(21) Application No. 44985/74 (22) Filed 17 Oct. 1974
 (31) Convention Application No. 2 352 266
 (32) Filed 18 Oct. 1973 in
 (33) Fed. Rep. of Germany (DT)
 (44) Complete Specification published 21 Sept. 1977
 (51) INT CL' A61K 7/40
 (52) Index at acceptance A5B 771



(54) PACKAGES CONTAINING TWO OR MORE SKIN-CARE AGENTS IN CONTACT

(71) We, HENKEL & CIE, GMBH, a German Company, of 67 Henkelstrasse, Dusseldorf-Holthausen 4000, Germany, do hereby declare the invention, for which we pray that a patent may be granted to us, and the method by which it is to be performed, to be particularly described in and by the following statement:—

The present invention relates to a skin-care preparation comprising fat-free aqueous gels and anhydrous fatty creams in contact in one packaging container.

It is already known to use both anhydrous fatty creams and also fat-free aqueous gels as skin-care agents in special limited spheres of application. The anhydrous fatty creams which are here concerned are those agents for the care and protection of the skin which are particularly suitable for persons having extremely dry skin. They can, moreover, be used generally to afford protection against the influences of the weather, which severely tax the skin, such as wind, rain, snow; the effect of strong sunshine; and long bathing in fresh or salt water. A further sphere of application for anhydrous fatty creams is their use as night creams and in the care of severely taxed rough areas of skin, such as for example hands, elbows and heels. By means of special additions, such as substances which absorb ultra-violet rays, moisture agents or other additives, there can be produced on this basis protective agents against the sun, moisturising creams or special creams having a particular effect. Creams of this type rapidly melt on the skin and can therefore be spread easily in a thin and even layer.

The fat-free aqueous gels are also valued as skin-care agents which can be used in special spheres of application. The substances here concerned are chiefly gels based on tragacanth, gelatine, alginates, polyacrylic acid in combination with glycerine and special additives. They are particularly suitable as protective agents during the day and as a foundation for make-up when the facial skin is extremely greasy, and also in the care of roughened hands. At the same time they can be provided with special additives in order to obtain special creams having a particular effect. The fat-free aqueous gels can also be spread easily on the skin and have a refreshing and cooling effect thereon.

Since the consumers have a wide range of skin types and the skin-care agents are intended to serve the most diverse purposes, it has hitherto been necessary to use various mixtures of the above ingredients and to keep them in numerous individual containers. Such mixtures however require an emulsifying agent if they are to remain stable in storage. It has been found that such emulsifiers often give rise to allergies in persons with sensitive skin.

The present invention has for its object the provision of a skin-care combination, which permits the consumer himself to prepare the cream suited to his skin type, the purpose and the weather, which cream is inexpensive and easily accessible.

According to the present invention there is provided a skin-care preparation comprising at least one fat-free aqueous gel and at least one anhydrous fatty cream, the gel and the cream being present in a packaging container separately and (without) partitioning walls between said gel and cream, the gel and the cream being independently accessible in and separately removable from the container and in which the disposition of the gel and the cream in the container enable the gel and the cream to be simultaneously removed from the container.

Substances concerned in the case of the fat-free aqueous gels, on which the combined skin-care agent is based, are usually preparations based on thickeners, such as for example tragacanth, gelatine, alginates, agar-agar, methyl cellulose, carboxymethyl cellulose, polyacrylic acid, colloidal silicic acid, multivalent alcohols such as glycerine, propylene glycol, sorbitol, special additives, such as moisturising agents, extracts of herbs, preservatives, opacifiers, colouring substances and perfumes.

The anhydrous fatty creams on which the combined skin-care agent is based, are usually preparations based on natural fats, oils, waxes, Vaseline [Registered Trade Mark], paraffins, fatty alcohols, metallic salts of long-chained fatty acids, special additives, such as substances which absorb ultra-violet rays, moisturising agents, preservatives, opacifiers, colouring substances and scented oils.

Since neither product is an emulsion, it is not necessary to use emulsifying agents, so that the skin-care preparation according to the invention is particularly suitable for persons having sensitive skin, who tend towards allergies in respect of individual emulsifying agents.

The skin-care preparation according to the invention enables the consumer himself to prepare the optimum cream for his skin-type, the respective purpose and the weather, by removing portions of the anhydrous fatty cream and the fat-free aqueous gel from the container and mixing same, or, if need be, of using the anhydrous fatty cream or the fat-free aqueous gel alone. The mixing of the two basic creams in the desired ratio can be effected quickly on the back of the hand or in the lid of the container. The skin-care agent thus produced is quite unexpectedly comparable to an emulsion of creamy consistency with regard to its cosmetic properties, its distributability and its capacity for penetration. The components of the skin-care preparation of the invention do not become intermingled in the container even when kept for quite long periods.

The appearance of the two components of the combined skin-care agent can vary considerably, thereby providing a differentiation of the individual components in accordance with its nature and further substances contained therein e.g. substances for filtering ultra-violet rays. The anhydrous fatty cream without further additives is slightly cloudy, almost transparent. The addition of white pigments, e.g. titanium dioxide, zinc oxide, magnesium oxide or metallic soaps, preferably metal stearates or palmitates, gives rise to a white cream. A white colouring is also obtained by the addition of an opacifier, preferably a copolymer based on polystyrene. A coloured, vitreous cream is obtained by the sole addition of an oil-soluble colouring substance. The general addition of oil-soluble colouring substances with opacifiers, colouring pigments, gold-, silver- or colouring glass pigments produces a wide range of variations in colour. The same variety of appearance from the clear transparent gel to the coloured gel with gloss effects can be achieved in the case of the fat-free gel, wherein water-soluble colouring substances are used instead of oil-soluble colouring substances.

The packaging containers which are provided, preferably transparent glass or plastic containers in the form of a jar or a pot, are filled with the two types of component in various arrangements. Various possibilities for arranging them can be seen in the accompanying drawings.

The filling can be effected in such a manner that either before or during the filling a partitioning member is inserted into the jar, and is removed on completion of filling. This can be readily effected after passing through a cooling or normal path, since both products are thixotropic and filling is effected at approximately 30 to 35°C. However, the two products can each be supplied, without an insertion from one or several nozzles to the jars, during which process different arrangements and irregular patterns are possible. It is also possible first to half fill the pot with one cream and then to insert the other cream in the centre from a nozzle which is lowered to the bottom of the pot and then slowly raised during filling. In this way a substantially round ray-shaped core is produced in the centre.

Example.

The following examples of anhydrous fatty creams and fat-free aqueous gels may be used in the skin-care preparation of the invention, being filled into containers as indicated in the accompanying drawings.

Slightly cloudy, almost transparent, anhydrous fatty cream.
(Cream No. 1).

myristyl alcohol	2.0 parts by weight
cetyl alcohol	5.0 "
microcrystalline paraffin-hydrocarbons	20.0 "
liquid paraffin	70.5 "
triglyceride of 12-hydroxystearic acid	2.0 "
Scented oil	0.5 "

White anhydrous fatty cream.
(Cream No. 2).

myristyl alcohol	2.0 parts by weight
cetyl alcohol	4.0 "
microcrystalline paraffin-hydrocarbons	20.0 "
liquid paraffin	70.7 "
colloidal silicic acid	2.0 "
titanium dioxide	1.0 "
scented oil	0.3 "

Various white anhydrous fatty creams.

	Cream No.				
	3	4	5	6	— parts by weight
Vaseline (Registered Trade Mark)	10.0	10.0	10.0	—	parts by weight
Polyethylene wax	—	—	—	10.0	"
Hard Paraffin	20.0	15.0	15.0	—	"
Liquid paraffin	49.5	52.5	50.4	73.5	"
Ethylene glycol mono- stearate	—	—	5.0	—	"
Isopropyl myristate	5.0	—	—	5.0	"
2-octyl dodecanol	—	5.0	10.0	—	"
Triglyceride of middle- chain fatty acids C_8-C_{12}	5.0	5.0	—	—	"
Stearyl alcohol	4.0	5.0	—	5.0	"
Cetyl alcohol	—	—	4.0	3.0	"
Aluminium stearate	2.0	—	—	—	"
Colloidal silicic acid	—	—	—	2.0	"
Titanium dioxide	1.0	0.5	—	1.0	"

Various white anhydrous fatty creams.

		Cream No.			
		3	4	5	6
5	Zinc oxide	3.0	4.0	—	— "
	Zinc stearate	—	3.0	5.0	— "
	Perfume	0.5	—	0.6	0.5 "

Coloured anhydrous fatty creams.

		Cream No.		
		7	8	9
10	Myristyl alcohol	2.0	2.0	2.0 parts by weight
	Cetyl alcohol	4.0	4.0	4.0 "
	Microcrystalline paraffin-hydrocarbons	20.0	20.0	20.0 "
	Liquid paraffin	70.3	65.4	69.5 "
15	Hardened ricinoleic acid	2.0	—	— "
	Aluminium stearate	—	2.0	— "
	Colloidal silicic acid	—	—	2.0 "
	Titanium dioxide	0.7	1.0	0.5 "
20	Sico-fat blue 50401 N = C-ext. blue 12, 0.2% in liquid paraffin	0.6	—	— "
	Sico-fat red = C-red 2 0.05%, in liquid paraffin	—	5.0	— "
25	Gloss pigment of the iodine type	—	—	1.5 "
	Scented oil	0.4	0.6	0.5 "

*Anhydrous sun-protection cream.
(Cream No. 10).*

30	Myristyl alcohol	2.0 parts by weight
	Cetyl alcohol	4.0 "
	Microcrystalline paraffin-hydrocarbons	20.0 "
	Liquid paraffin	68.5 "
	Triglyceride of 12-hydroxystearic acid	2.0 "
35	Titanium dioxide	1.0 "
	Ethylhexyl-p-methoxy-cinnamic acid ester	2.0 "
	scented oil	0.5 "

Fat-free aqueous gels having herb extracts.

		Gel No.	11	12	13	
5	Carboxyvinylpolymer Car-					
	bopol 940 [Registered					
	Trade Mark]	0.6	—	—	parts by weight	5
	Gelatine	—	4.0	—	"	
	Colloidal silicic acid	—	—	10.0	"	
10	Glycerine	8.0	15.0	40.0	"	
	Sorbitol	—	—	30.0	"	10
	Ethanol	—	3.0	—	"	
	Triethanolamine	0.6	—	—	"	
	Herb extracts	1.0	2.0	5.0	"	
15	Ethoxylated partial					
	glycerides of fatty					
	acids C ₈ —C ₁₂	—	1.0	—	"	15
	Opacifier based on					
	styrene-copolymer SC					
20	9142 (BASF) [Regis-					
	tered Trade Mark]	—	0.4	—	"	20
	L-blue Z 5000 = C-blue					
	20, 1% aqueous					
	solution	0.2	0.3	0.25	"	
25	40% suspension of zinc					
	stearate	1.0	—	0.5	"	25
	Preservative	0.2	0.2	0.2	"	
	Scented oil	0.5	0.5	0.5	"	
	Water	87.9	73.6	13.55	"	

Fat-free aqueous gels of various colours.

		Gel No.	14	15	16	17	
30	Carboxyvinylcopolymer Car-						
	bopol 940 [Registered						
	Trade Mark]	0.8	—	—	—	parts by weight	
35	Carboxymethylcellulose	—	5.0	—	—	"	35
	Methylcellulose	—	—	—	2.5	"	
	Sodium alginate	—	—	2.0	—	"	
	Glycerine	—	10.0	10.0	—	"	
40	1,2-propylene glycol	5.0	—	—	5.0	"	
	Sorbitol	—	—	5.0	—	"	40

Fat-free aqueous gels of various colours.

		Gel No. 14	15	16	17	
5	Ethanol	5.0	—	5.0	—	"
5	Triethanolamine	0.8	—	—	—	"
	Moisturising agent Hydroviton [Registered Trade Mark]	0.5	1.0	—	2.0	"
10	Ethoxylated partial glycerides of fatty acids C ₈ —C ₁₂	1.0	—	2.0	0.5	"
10	Opacifier based on styrene copolymer SC 9142 BASF [Registered Trade Mark]	0.5	—	—	—	"
15	Lemon yellow Z 1100 = C-yellow 11 10% aqueous solution	0.8	—	0.6	—	"
20	L-red Z 3000 = C-red 49 5% aqueous solution	—	0.2	—	0.4	"
	Gloss pigment of the iodine type	—	1.0	1.5	—	"
	Preservative	0.2	0.2	0.2	0.2	"
	Scented oil	0.5	0.5	0.5	0.5	"
25	Water	84.9	82.1	73.2	88.9	"
	<i>Fat-free aqueous sun-protection gel. (Gel. No. 18).</i>					
30	Carboxylvinylpolymer, Carbopol 940 [Registered Trade Mark]				0.8 parts by weight	
30	Glycerine				5.0	"
	Triethanolamine				1.5	"
	Benzimidazole sulphonic acid				2.0	"
	Polyethyleneglycol MG 400				1.0	"
35	Opacifier based on styrene copolymer SC 9142 (BASF) [Registered Trade Mark]				0.3	"
	L-red Z 3000 = C-red 49 5% aqueous solution				0.3	"
	Preservative				0.2	"
	Scented oil				0.5	"
	Water				88.4	"
40	Transparent plastic containers may be filled with the aforementioned anhydrous fatty creams and fat-free aqueous gels in the arrangements shown in the					
						4

accompanying drawing. The numbers in the individual sectors in the drawing indicate the number of the cream or gel used. The consumer then has the opportunity of himself mixing the components to form the skin-care preparation which is suited to his skin-type and to the purpose for which it is used.

5 WHAT WE CLAIM IS:—

10 1. A skin-care preparation comprising at least one fat-free aqueous gel and at least one anhydrous fatty cream, the gel and the cream being present in a packaging container separately and without partitioning walls between said gel and cream, the gel and the cream being independently accessible in and separately removable from the container and in which the disposition of the gel and the cream in the container enable the gel and the cream to be simultaneously removed from the container.

15 2. A skin-care preparation as claimed in claim 1, in which the packaging container is a transparent glass or plastic container.

20 3. A skin-care preparation as claimed in any of the preceding claims, in which the or each fat-free gel and/or the or each anhydrous fatty cream contain colouring substances and/or pigments and/or other known additives for cosmetic preparations with the exception of emulsifying agents.

25 4. A skin-care preparation as claimed in claim 1 substantially as hereinbefore described in the Example.

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EXHIBIT O



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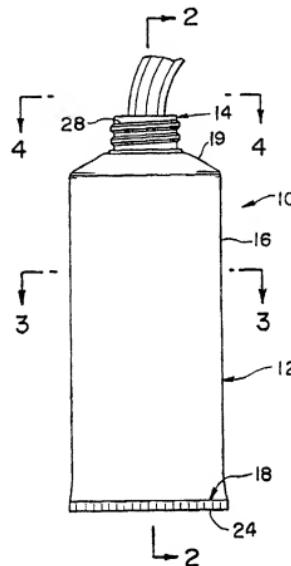
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(54) Title: METHOD AND APPARATUS FOR DISPENSING VISCOUS MATERIALS

(57) Abstract

A method and apparatus for simultaneously dispensing a plurality of viscous materials, such as dentifrice pastes, produces a striped outer layer of a first material surrounding a core of a second viscous material. The apparatus (10) includes a collapsible tube or pump-type dispenser (12) containing a first viscous material (20) and a second viscous material (22) of a contrasting color in contact with the first material so that both materials are dispensed simultaneously. The tube or dispenser includes an outlet nozzle (14) having a shaped outlet (32) capable of scraping and removing a portion of the outer layer of viscous material to dispense the core material having stripes of the outer material. The nozzle is capable of forming a plurality of fine pin stripes on the core material.



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5 METHOD AND APPARATUS FOR
DISPENSING VISCOUS MATERIALSFIELD OF THE INVENTION

10 The present invention is directed to a method and apparatus for simultaneously dispensing at least two different viscous materials. More particularly, the invention is directed to a method and apparatus for dispensing two different viscous materials to form an extrudate having a plurality of longitudinal stripes of one of the viscous materials.

15 BACKGROUND OF THE INVENTION

Containers such as collapsible squeeze tubes have been used to dispense simultaneously at least two different materials. It is desirable to package the materials so that when dispensed, the different materials appear as longitudinal stripes in the extrudate. Several containers and methods for dispensing the materials have been developed.

20 Many of the containers for dispensing different viscous materials include containers having separate compartments or a second container disposed within a first container where each compartment or container contains a different material. These devices typically include a dispensing nozzle having separate channels to simultaneously dispense the materials from each compartment or container. These devices, although effective, are expensive to manufacture. In addition, these dispensing containers are difficult to fill and generally require complex filling nozzles. Examples of these types of containers are disclosed in U.S. Patent No. 4,211,341 to Weyn, U.S. Patent No. 3,175,731 to Ellman and British Patent No. 209,920.

Other forms of containers for dispensing two different materials include a single tube such as that disclosed in U.S. Patent No. 3,747,804 to Raaf et al. In this device the first material is placed in one end of the tube with the second material being placed in the discharge end of the tube. A dispensing nozzle is attached to the discharge end of the tube. The nozzle includes a collar extending into the tube such that a main channel leads to the first material in the lower end of the tube and a secondary channel leads to the second material in the discharge end. Pressure applied to the tube causes the two materials to be simultaneously dispensed through the nozzle. This type of dispensing is referred to as "pointing" the striping material onto a core of a base material. Another form of this type of device is disclosed in U.S. Patent No. 10 4,826,044.

Still another form of dispensing device for simultaneously dispensing two different materials is disclosed in GB 2142611A. This patent shows a filling nozzle for filling a tube with two dissimilar materials arranged so that a main body of material can be dispensed from the tube with longitudinal stripes of one of the dissimilar materials. The two materials fill the tube to form a core of the first material and a plurality of streams of the striping material extending along the interior of the tube walls. This type of filling is sometimes referred to as deep striping. In this type of container, when each of the two dissimilar materials have a similar rheology, the two materials can be dispensed simultaneously through a single nozzle to form a core of the first material with stripes of the second material.

Each of these dispensing devices are effective in dispensing two different materials. While several of these devices are capable of dispensing a core of one material and longitudinal stripes of a second material, the dispensers are limited to the size of the striping which can be produced. The rheology of the material is generally such that the ratio of the two materials within the container must be within a certain range. In particular, with deep

striping, the striping material must be provided in a certain amount to be dispensed with the core material. As a consequence, the dimensions of the striping must be of predetermined width and depth to dispense effectively. Furthermore, as the dimensions of the striping material within the tube 5 decrease, the definition of the striping in the dispensed material decreases.

There is, therefore, a continuing need in the art for a dispensing device capable of dispensing two dissimilar materials to produce a core of one material having narrow striping of a second material. There is further a need in the art for a dispensing device capable of dispensing two or more materials to 10 form a shaped extrudate.

Summary of the Invention

The present invention is directed to a method and apparatus for dispensing simultaneously two or more viscous materials. The invention is 15 further directed to a dispensing device for dispensing two or more different materials to form an extrudate having a predetermined geometric shape with selected portions of the extrudate being formed from the different materials. Accordingly, it is a primary object of this invention to dispense viscous materials such as a dentifrice paste or gel in such a manner to form a core or base of a. 20 first material having stripes of a second material. In preferred embodiments of the invention, the dentifrice comprises two or more dissimilar materials of contrasting colors. The stripes may be formed as longitudinal or spiral stripes.

These and other objects of the invention are basically attained by providing a dispensing container or tube with a dispensing nozzle having a 25 geometric-shaped dispensing outlet. In preferred embodiments, the dispensing outlet is a polygon-shaped opening having a plurality of radially disposed points. The container is provided with two or more dissimilar materials having compatible rheologies so that each of the materials are dispensed simultaneously at a desired rate. The materials are placed in the same

5 container in designated regions such that the materials are in contact with each other. In one embodiment, two dissimilar materials are filled in a tube such that one of the materials forms a core and the second material defines longitudinal stripes. Generally, the stripes are formed on the peripheral edge of the tube so that when the materials are dispensed, the dispensed material appears as longitudinal stripes. In alternative embodiments, the dissimilar materials are arranged as a central core and one or more outer annular layers. In preferred embodiments, each of the dissimilar materials are disposed in areas extending longitudinally to the container such that the materials extend substantially the 10 full length of the container.

The dispensing outlet in the container is capable of shaping the materials as they are dispensed. Preferably, the radial points of the outlet are positioned to coincide with the stripes of the material in the container. As the materials are dispensed from the container through the dispensing nozzle, the radial points of the outlet essentially scrape and restrict the flow of the striping material as it is dispensed to form small and narrow stripes. The dispensing outlet may be a number of different shapes including, for example, a star shape, triangle shape, square shape or slot shape.

20 In one preferred embodiment, the dispensing outlet is a star shape. The container includes a plurality of stripes of one of the materials corresponding to the number of points of the star and are positioned in the container to align with the points of the star. As the materials are dispensed through the nozzle, the points of the star shape the extrudate so that the extrudate has a substantially star-shaped cross section with the tips of the star being formed from the striping material.

25

These and other objects and salient features of the invention will become apparent from the following detailed description which, when taken in conjunction with the drawings, discloses several preferred embodiments of the invention.

Brief Description of the Drawings

Referring to the drawings which form part of this original disclosure in which:

5 Figure 1 is an elevated view of the container in accordance with a preferred embodiment of the invention;

Figure 2 is a cross-sectional view of the container taken along lines 2-2 of Figure 1;

10 Figure 3 is a cross-sectional view of the container taken along line 3-3 of Figure 1;

Figure 4 is an elevated end view of the dispensing nozzle in a first embodiment of the invention, and Figure 4A is a perspective view of the material having been dispensed from the nozzle of Figure 4, showing a star shape with the tips of the star having longitudinal stripes;

15 Figure 5 is an elevated end view of a dispensing nozzle in a second embodiment of the invention, and Figure 5A is a perspective view of the material having been dispensed from the nozzle of Figure 5 showing a plurality of fine longitudinal stripes;

20 Figure 6 is an elevated end view of the dispensing nozzle in a third embodiment of the invention, and Figure 6A is a perspective view of the material having been dispensed from the nozzle of Figure 6 showing the longitudinal stripes;

25 Figure 7 is an elevated end view of a fourth embodiment of the invention, and Figure 7A is a perspective view of the material dispensed from the nozzle of Figure 7 showing the two longitudinal stripes;

Figure 8 is a cross-sectional view of a container in a further embodiment of the invention showing the two different materials in the container arranged to form longitudinal stripes;

Figure 9 is an end view of the dispensing nozzle in a further embodiment, and Figure 9A is a perspective view of the material dispensed from the nozzle showing the longitudinal stripes;

5 Figure 10 is a cross-sectional view of the container in a further embodiment showing the different materials arranged as concentric annular columns, and Figure 10A is a perspective view of the material having been dispensed and showing the annular stripes;

10 Figure 11 is a cross-sectional view of the container in a further embodiment showing the materials arranged as a center core, a middle annular core, and an outer annular core divided into four wedge-shaped columns of different colors;

Figure 12 is a cross section of a further embodiment of the container showing a center core and an outer core where the outer core includes five spaced apart longitudinal columns of different materials;

15 Figure 13 is an end view of the dispensing nozzle in a further embodiment showing a dispensing outlet having a plurality of alternating long and short radial legs, and Figure 13A is a perspective view of the material dispensed from the nozzle of Figure 13.

20 Detailed Description of the Invention

The disadvantages and limitations of the previous dispensing devices are overcome by the present invention, while providing an efficient and inexpensive dispensing device for dispensing the materials in a predetermined geometric shape having longitudinal stripes. The invention is primarily directed to a container for dispensing viscous materials, and in particular, paste or gel dentifrices. Referring to Figure 1, the dispensing device 10 comprises a container 12 for containing a viscous material and a dispensing nozzle 14.

The container 12 may be any suitable container capable of dispensing viscous materials, and in particular for dispensing a dentifrice paste or gel. The

5 container may be a thin-walled collapsible tube or a rigid container having a conventional pump or other mechanical dispensing apparatus. In preferred embodiments, the container is a squeeze tube made of a synthetic, multilayer plastic material such as nylon, polyethylene, polypropylene, ethylene vinyl alcohol, polyesters, and the like. The preferred containers include an inner barrier layer to prevent adsorption of flavor components or other unstable components in the viscous material. In the embodiment of Figures 1 and 2, the container 12 is a collapsible tube having a cylindrical side wall 16 with a closed bottom end 18 and a tapered collar 19 at the upper end, coupled to the
10 dispensing nozzle 14. In the embodiment of Figures 1 and 2, the dispensing nozzle 14 is integrally molded with the sidewall of the container, although in alternative embodiments the nozzle may be molded separately such as by injection molding, and attached to the tube by conventional means.

15 In the embodiment of Figures 1-3, the container is filled with two dissimilar materials. As shown in Figures 2 and 3, a first viscous material 20 defines a core centered axially in the tube 12 and extending substantially the full length of the tube. A second viscous material 22 surrounds the core 20 in the form of an annular column and also extends the full length of the tube. The viscous materials are injected into the tube from the bottom end using a
20 conventional coaxial filling nozzle as known in the art. The tube is then closed at the bottom end by crimping at 24 as shown in Figure 1.

25 The dissimilar viscous materials 20, 22 in preferred embodiments are dentifrice compositions. As used herein, the term dissimilar materials is intended to refer to materials which differ in texture, composition, and particularly color. For example, the viscous materials may be an opaque dentifrice paste, a colored paste, or a translucent or clear gel. The viscous materials may also contain colored flakes, speckles or other colored bodies to enhance the aesthetic appearance of the material. In preferred embodiments, the container 14 contains at least two dissimilar compositions having

contrasting colors. For example, in the embodiment of Figures 1-3, the first core material may be a white or pigmented paste, and the outer material may be a colored gel of a contrasting color.

5 The rheology of each of the dissimilar materials are compatible with each other so that the compounds are dispensed simultaneously from the dispensing container. It is desirable to have the dissimilar materials with similar rheologies so that each material can be dispensed at the same rate. The actual dispensing rate of the materials will depend in part on the volume of each material in the container and the shape and dimensions of the dispensing 10 outlet. The materials further have flow characteristics and slump properties to be easily dispensed from the container and retain the extruded shape for a sufficient length of time, typically about 60 seconds.

15 The preferred dentifrice compositions are conventional formulations as known in the art. Typical dentifrice compositions include a gelling agent, a humectant, polishing material, a surfactant, and a fluoride-providing compound. One example of a clear dentifrice comprises sodium monofluorophosphate, glycerine, sorbitol, and amorphous silica. Suitable dentifrice compositions are disclosed in U.S. Patent No. 4,374,823; U.S. Patent No. 4,375,460; U.S. Patent No. 4,467,921; and U.S. Patent No. 4,456,585.

20 The dispensing nozzle 14 is in the form of a collar 26 extending axially from the upper end of the tube. In preferred embodiments, the collar 26 includes external threads 28 for coupling with a standard screw cap (not shown). The nozzle 14 includes a lip 30 extending radially inward from the outer edge to define the dispensing outlet 32.

25 The dispensing outlet 32 is shaped and dimensioned to shape the dentifrices or other viscous materials as the materials are dispensed. The outlet 32 and the lip 30 are also dimensioned to cooperate with the dissimilar materials within the tube to shape at least one of the materials to produce a striped pattern of the second material on the core material. As shown in the

embodiment of Figures 2 and 3, the container 12 contains two dissimilar materials arranged concentrically. The outer material 22 is forced upwardly through the collar 26 simultaneously with the core material 20. As shown in Figure 2, the lip 30 is dimensioned to cooperate with the outer material 22 to control the amount of the material 22 being dispensed through the dispensing outlet 32 in relation to the amount of the core material 20 being dispensed. The dispensing outlet is shaped to scrape a portion of the outer material 22 from the core material 20 and restrict the flow of the outer material to produce a striped pattern of the outer material 22 on the core material 20.

10 In preferred embodiments, the core material and the striping material are disposed in longitudinal areas of the container and extend the full length of the container while being in continuous physical contact with each other. Both materials are dispensed simultaneously by passing through an outlet and dispensing nozzle.

15 The dispensing outlet 32 may be any shape capable of shaping the core material 20 and the outer material 22. In preferred embodiments, the dispensing outlet 32 is a polygon-shaped opening having a plurality of substantially straight sides to define a plurality of radial points. In the embodiment of Figures 1-4, the dispensing outlet 32 is a star-shaped opening. 20 The star-shaped opening as shown in Figure 4 is formed by side edges 34 which define radial points 36 of the star and troughs 38 between the points 36.

25 The two dissimilar materials 20 and 22 are dispensed simultaneously through the star-shaped opening to form a star-shaped extrudate 39 as shown in Figure 4A. The radial distance between the troughs 38 and the points 36 of the star-shaped outlet 32 is selected to define the pattern of the dissimilar materials as they are dispensed. In the embodiment of Figure 4, the troughs 38 of the star-shaped opening extend inwardly a sufficient distance to remove a portion of the outer material 22 from the core material 20 while dispensing the materials so that the trough 40 of the star-shaped extrudate are formed from the

core material 20. The points 36 of the star-shaped openings are positioned to allow a predetermined amount of the outer material 22 to be dispensed as points 42 of the extruded star which appear as longitudinal stripes as shown in Figure 4A. In preferred embodiments, the points 42 of the star-shaped outlet 5 are aligned with the inner wall of the collar 26. This embodiment is referred to as the stars and stripes embodiment.

The position and dimension of the longitudinal stripes 42 of the extrudate can be controlled by the shape and dimension of the dispensing outlet, the placement of the dissimilar materials in the container, and the respective 10 amounts of each material. The angle of the sides 34 with respect to each other which define the points of the star can be varied to control the width and depth of the stripes on the core. For example, a larger angle between the sides will produce wide stripes in the extruded material. In a similar manner, a small angle between the sides of the star will produce a fine, narrow pin stripe which 15 is generally deeper than the stripes formed by the wider-angled sides. The polygon-shaped outlet is able to produce a plurality of fine stripes of one of the viscous materials without loss of definition which cannot be produced by filling the container with stripes or columns of the dissimilar materials and dispensing the materials through a standard annular outlet.

20 In a further embodiment illustrated in Figure 5, the dispensing nozzle 44 includes a dispensing outlet 46 having a plurality of side edges 48 defining a substantially serrated outlet. In this embodiment, it is desirable to fill the container with two dissimilar materials as concentric columns in the manner shown in Figures 2 and 3. The side edges 48 converge to define a plurality of 25 alternating troughs 50 and points 52. The viscous materials are dispensed through the serrated outlet so that the troughs 50 remove a portion of the outer annular layer of material to expose the core material. The outer annular material is similarly dispensed through the points 52 to produce an extrudate

having a plurality of fine stripes of the outer material on a core of the inner material as shown in Figure 5A.

In a further embodiment shown in Figures 6 and 6A, the dispensing nozzle 54 includes a triangular-shaped dispensing outlet 56. In a similar manner as in the embodiments of Figures 1-5, the points 58 of the triangular-shaped dispensing outlet 56 produce a triangular extrudate 60 having the points 62 of the extrudate formed from the outer material. Figures 7 and 7A show a further alternative embodiment where the nozzle 64 includes a dispensing outlet 66 in the shape of an elongated slot. The viscous materials are dispensed from the outlet 66 in the form of strip 68 having longitudinal stripes 70 along the outer edges.

In a further embodiment illustrated in Figure 8, a tube 72 is filled with a core material 74 and columns of a striping material 76 disposed around the outer peripheral edge. The striping material forms longitudinal stripes or columns in the container. The two dissimilar materials are dispensed through the nozzle simultaneously. This arrangement of the two dissimilar materials is typically referred to as deep striping. A dispensing nozzle 78 as shown in Figure 9 includes a four-point star-shaped dispensing outlet 80. The outlet 80 includes a plurality of side edges 82 defining the points 84 and troughs 86 of the star. The striping material 76 is positioned in the tube to be aligned with the points 84 of the star-shaped outlet as shown by phantom lines in Figure 9.

The arrangement of the core material 74 and the striping material 76 in the tube 72 allow the materials to move through the dispensing nozzle 78 as a column of the core material 74 with stripes of the striping material 76 until the materials reach the dispensing outlet 80. As the materials pass through the dispensing outlet 80, the troughs 86 of the outlet 80 shape the materials to form the extrudate 88 into a star shape where the troughs 90 of the extrudate are formed from the core material. The points 84 of the outlet 80 shape the striping material 76 to form the points 92 of the extrudate as shown in Figure 9B.

5 In a further alternative embodiment shown in Figure 10, the tube 94 contains four dissimilar viscous materials 96, 98, 100 and 102 arranged as concentric annular columns. The four materials may be dispensed through a nozzle as in Figure 9A to produce an extrudate 106 having a star shape where the arms 108 of the star are made up of the four materials such that each material is visible.

10 Numerous arrangements and any number of dissimilar materials may be used to produce different effects in the extrudate. It is particularly desirable to use materials having contrasting colors. For example, in a further embodiment illustrated in Figure 11, the tube 110 contains six dissimilar materials. In this embodiment, a core material 112 is surrounded by an annular column 114 of a clear material. An outer annular layer being made up of four arcuate columns 116, 118, 120 and 122 surround the column 114. These materials may be dispensed through a dispensing outlet as in Figure 9 to produce a star-shaped 15 extrudate having each of the arms making up the star formed from one of the dissimilar materials. The body of the star being formed from the transparent material 114 allows the core material 112 to be visible.

20 In a further embodiment illustrated in Figure 12, a tube 124 contains three dissimilar materials. A core material 126 of a first color is surrounded by an annular column 128 of a second material having a second color. Five spaced apart columns 130 of a third material of a third color are arranged around the peripheral edge of the second material 128. These materials may be dispensed in cooperation with a dispensing outlet as shown in Figure 4 with the points of the stars aligned with the space 132 between the columns 130. 25 When dispensed, the body of the star-shaped extrudate will be formed from the core material 126 with the sides of the arms of the star formed from the material 128 and the tips of the star formed from the third material 130.

In a further embodiment of the invention shown in Figure 13, the dispensing nozzle 132 includes a dispensing outlet 134 having a star-like

shape defined by alternating short peaks 136 and long peaks 138. When two materials are arranged as concentric columns as shown in Figure 3, the dispensed materials produce a star-shaped extrudate having narrow stripes 140 formed by the short peaks 136 and dominant, broad stripes 142 formed from the long peaks 138.

It will be recognized that various arrangements and shapes of the dispensing outlet and the materials in the container can be made. In one embodiment, the outer material can be a colored translucent material or transparent material having colored bodies therein which can be dispensed as a thin layer on the core material so that the core is also visible.

Numerous other embodiments can be produced to form an extrudate having a desired shape and number of longitudinal stripes. By filling the container with two or more dissimilar materials and dispensing the materials through the polygon-shaped outlet, the position and dimension of the striping can be controlled. While several embodiments have been illustrated, it will be apparent to one skilled in the art that numerous alternative embodiments can be envisioned without departing from the scope of the invention as defined in the following claims.

WHAT IS CLAIMED IS:

1. A dispensing device comprising

5 a container containing a first viscous material axially disposed in said container, and at least one second viscous material axially contacting said first viscous material; and

10 dispensing means on said container for shaping said first and second viscous material as said first and second materials are being dispensed, and for dispensing said second material in a controlled amount with respect to the amount of said first material.

15 2. The device of claim 1, wherein said first and second material have contrasting colors and viscosities so that each material is simultaneously dispensed from said container as an inner core of said first material and an outer layer of said second material.

20 3. The device of claim 1, wherein said dispensing means includes means for removing a portion of said second material while dispensing said first and second materials as an inner core of said first material and at least one stripe of said second material on said core.

25 4. The device of claim 3, wherein said removing means comprises an inwardly extending lip having an orifice, said orifice having a polygonal shape.

5. The device of claim 4, wherein said orifice is a star shape.

6. The device of claim 4, wherein said orifice includes a serrated inner edge.

7. The device of claim 4, wherein said orifice includes a plurality of arms defining a trough between each of said arms, each of said troughs being disposed to shape said second material so that said second material is dispensed only through said arms of said orifice.

8. The device of claim 1, wherein said first material is contained in said container as a core and said second material is contained in said container surrounding said core.

9. The device of claim 1, wherein said first material is contained in said container as a core and said second material is contained in said container as a plurality of columns disposed longitudinally with respect to said container and extending substantially the length of said container, said columns being arranged radially around said core.

10. The device of claim 1, further comprising a third viscous material, said first, second and third viscous materials being contained in said container as concentric annular layers.

11. The device of claim 1, wherein said container is a collapsible squeeze tube.

12. The device of claim 1, wherein said first material is centrally disposed in said container and said second material surrounds said first material, said container including a third material in a plurality of columns disposed in said second material.

13. The device of claim 1, wherein said dispensing means includes a dispensing nozzle having a polygonal shaped outlet, said outlet having a plurality of alternating first and second arms extending radially outward from an axial center of said container, wherein said first arms have a radial length greater than said second arms so that said device dispenses said viscous materials to dispense a first stripe of second material on said core through said first legs and to dispense a second stripe of said second material on said core through said second arms, said second stripe having a narrower width than said first stripe.

14. The device of claim 1, wherein said first material is disposed in said container as a central core, said second material is disposed to surround said core and said container further includes a plurality of columns of a third material disposed radially around a perimeter of said second material.

15. A method of dispensing viscous materials comprising
20 providing a container having a core of a first viscous material and a second viscous material surrounding said core; and

25 dispensing said first and second materials simultaneously through dispensing means, said dispensing means including shaping means for shaping only said outer layer to form a plurality of stripes on said first material.

16. The method of claim 15, wherein said shaping means forms a column of said materials and includes means for removing a portion of said second material from said column during dispensing to expose at least a portion of said core.

17. The method of claim 15, wherein said shaping means includes a dispensing outlet, said outlet having a serrated inner edge whereby said dispensing of said first and second materials produces a core of said first material and a plurality of stripes of said second material on said core.

18. The method of claim 16, wherein said shaping means includes a dispensing star shaped outlet.

10 19. The method of claim 16, wherein said shaping means includes a dispensing outlet having a polygonal shape.

15 20. The method of claim 16, wherein said shaping means includes a dispensing outlet having an elongated slot for dispensing said first and second materials.

20 21. The method of claim 19, wherein said dispensing outlet includes a plurality of alternating first and second arms, said first arms having a radial length greater than the radial length of said second arms, said method comprising dispensing said materials through said dispensing outlet and producing an extrudate having a plurality of first longitudinal stripes formed from said first arms and a plurality of second longitudinal stripes formed from said second arms.

FIG. 1

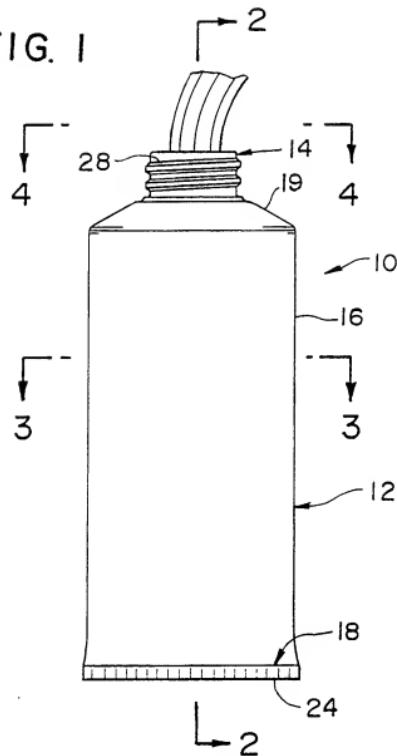


FIG. 3

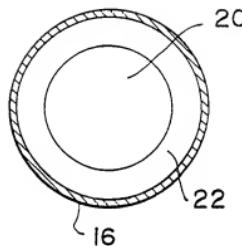
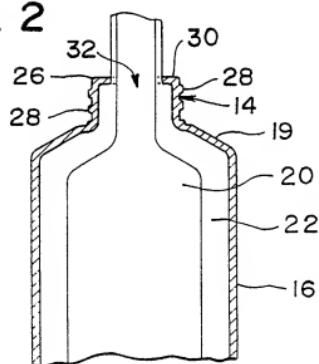


FIG. 2



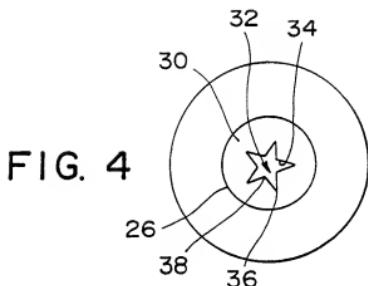


FIG. 4

FIG. 4A

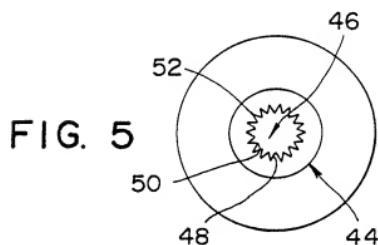
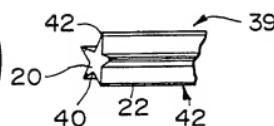


FIG. 5

FIG. 5A

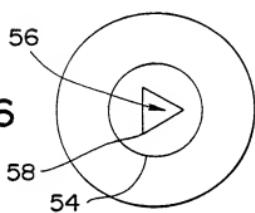


FIG. 6

FIG. 6A

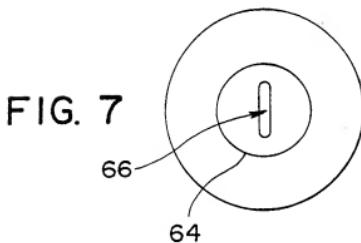
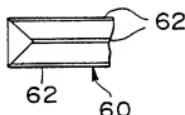


FIG. 7

FIG. 7A

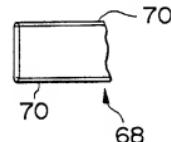


FIG. 8

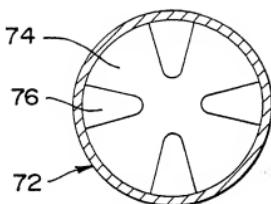


FIG. 9

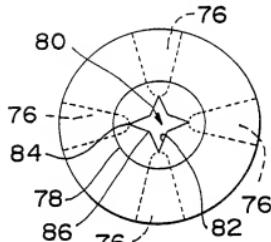


FIG. 9A

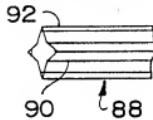


FIG. 10

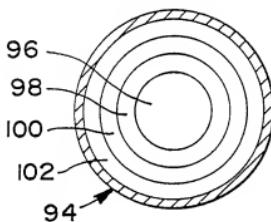


FIG. 11

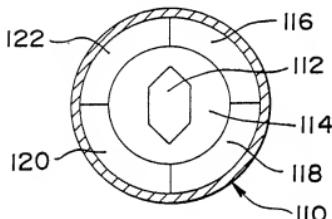


FIG. 13

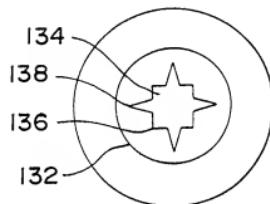


FIG. 10A

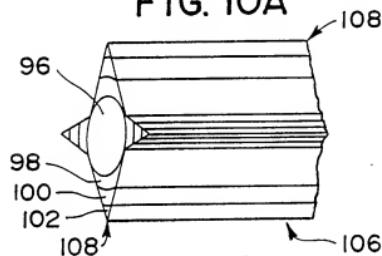


FIG. 12

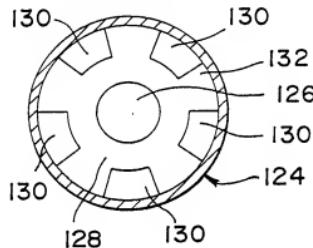
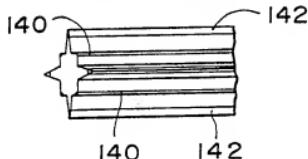


FIG. 13A



A. CLASSIFICATION OF SUBJECT MATTER
IPC 5 B65D35/24

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 5 B65D A23G A23P

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	GB,A,1 123 075 (STERWIN AG) 14 August 1968 see the whole document ---	1-4,11, 15,16, 19,20
A	GB,A,2 161 863 (REALEX CORP.) 22 January 1986 see abstract; figures ---	1,2,8, 10,11,15
A	FR,A,2 243 120 (CEBAL) 4 April 1975 see figures -----	1-5,11, 15,16,18



Further documents are listed in the continuation of box C.



Patent family members are listed in annex.

* Special categories of cited documents :

- *A* document defining the general state of the art which is not considered to be of particular relevance
- *E* earlier document but published on or after the international filing date
- *L* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- *O* document referring to an oral disclosure, use, exhibition or other means
- *P* document published prior to the international filing date but later than the priority date claimed

T later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

X document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

Y document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

& document member of the same patent family

1

Date of the actual completion of the international search

12 September 1994

Date of mailing of the international search report

20.09.94

Name and mailing address of the ISA

European Patent Office, P.O. 5818 Patentlaan 2
NL - 2280 HJ Rijswijk
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Fax: (+31-70) 340-3016

Authorized officer

Gino, C

Patent document cited in search report	Publication date	Patent family member(s)		Publication date	
GB-A-1123075		NONE			
GB-A-2161863	22-01-86	AU-B-	579850	15-12-88	
		AU-A-	3890185	23-01-86	
		CA-A-	1305949	04-08-92	
		DE-A,C	3507134	23-01-86	
		FR-A-	2567490	17-01-86	
		JP-A-	61033963	18-02-86	
		US-A-	4715518	29-12-87	
FR-A-2243120	04-04-75	NONE			

EXHIBIT P

March 21, 1944.

A. C. ROUTH

2,344,901

METHOD AND APPARATUS FOR MAKING FLAVORED CONFECTIONERY

Filed April 17, 1940

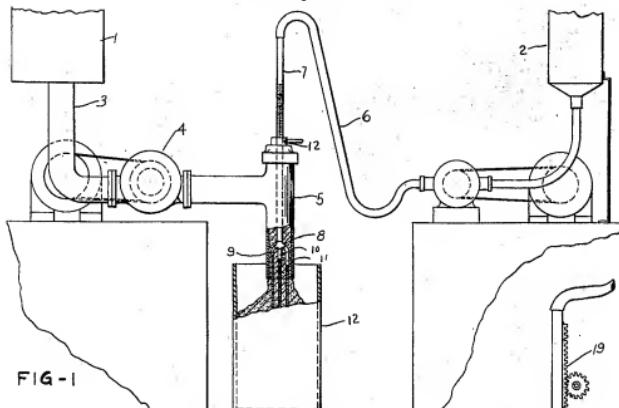


FIG - 1

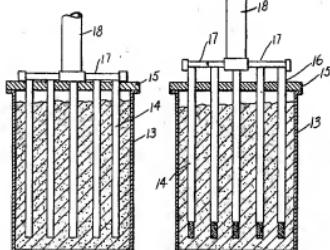


FIG-2

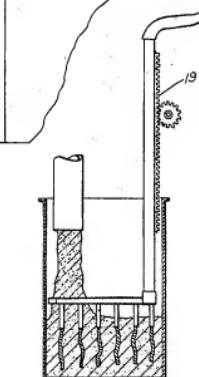
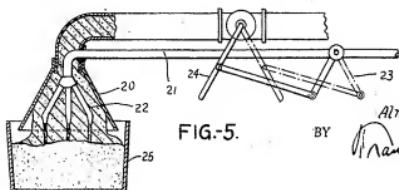


FIG-4



INVENTOR

Almond C. Routh

BY *Frank T. Slough*
His ATTORNEY.

UNITED STATES PATENT OFFICE

2,344,901

METHOD AND APPARATUS FOR MAKING
FLAVORED CONFECTIONS

Almond C. Routh, Sandusky, Ohio

Application April 17, 1940, Serial No. 330,180

5 Claims. (Cl. 107—54)

My invention relates to methods and apparatus for forming ice cream confections and the like, and relates more particularly to providing such confections with strips or cores of other materials such as fruits, nuts, syrups, or the like.

Ice cream confections of various kinds have heretofore been formed comprising an interior body of another substance than that of the main confection, as illustrated in Patent No. 2,042,940 to A. E. Herron, dated June 2, 1936.

It is an object of my invention to provide for either a "patch" freezer or a continuous freezer of any well known type, with novel means for inserting said other materials into the confection or ice cream.

Another object of my invention is to accomplish the above stated purposes in an economical and efficient manner.

Other objects of my invention and the invention itself will become increasingly apparent from a consideration of the following description and accompanying drawing, in which like parts are designated by like reference characters, and wherein:

Fig. 1 is a front elevational view, partially broken away, of a preferred embodiment of my invention;

Figs. 2 and 3 are sectional views of another embodiment of my invention;

Fig. 4 is a transverse sectional view of a third embodiment of my invention, similar to the embodiment illustrated in Figs. 2 and 3;

Fig. 5 is a sectional view of another embodiment of my invention, showing parts partially broken away.

Referring to the drawing, I have shown in Fig. 1, at the left hand side of the figure, a hopper or container 1 for ice cream or the like, and at 2, on the right hand side of the figure, a container for syrup or other filling material. The hopper 1 has associated therewith, at its discharge end, a discharge pipe or conduit 3 through which the ice cream in the hopper is pumped by the pump 4 into a common conduit 5, into which syrup or other filling material is pumped from the container 2 through a tube or outlet pipe 6, and a connected discharge pipe or tube 7, which is projected through an orifice 12 into the conduit 5 into which the ice cream has also been pumped.

The syrup discharge means or outlet 7 is connected at its lowermost end to an injection nozzle, 8 having a plurality preferably three in number, of downwardly extending tubular fingers 9, 10 and 11, projecting therefrom, these fingers being preferably of different lengths and disposed gen-

erally parallel to each other, the longest being spaced inwardly a short distance from the end of the common conduit 5 which, in the form shown in Fig. 1, is inserted into a container or receiver 12.

The ends of the tubular fingers in the embodiment shown in Fig. 1 are preferably flattened which prevents the syrup from drooling when filling direct-filled small packages such as pints or quarts. In Fig. 1, the syrup or ice cream nozzle or discharge tubes are shown projecting into a large can which is of the usual 5-gallon type, it is evident however, that any form of container may be utilized.

In operation, it will be readily appreciated that the ice cream is thus provided with cores of syrup or the like which are ribboned therethrough and that the packaged cream is not splattered with the flavoring but rather encloses the same in patterned effect.

It is to be understood that the weight of the ice cream, as shown in the figures herein, will cause the ice cream with its syrup or other filling material to be ribboned into the container 12 or into the package in bulk whichever container is employed so as to give a variegated effect to the ice cream. I contemplate further that a plurality of filling nozzles or discharge means, such as 7, might be projected within the ice cream nozzle in such a manner as to deposit different materials or different colored materials within the ice cream body.

In the form shown in Figs. 2 and 3, a container, of the type usually employed for the purpose of storing ice cream, such as a 5-gallon can, 13 is filled, preferably about 90%, although any relative proportions might be employed, full of ice cream and then the ice cream inlet or syrup nozzles 14 are brought into contact with the partially filled can of ice cream. A flat cover plate 15 is employed in this form and is preferably perforated as at 16 to accommodate a plurality of injection nozzles 14 which are projected therethrough, said nozzles being secured to a common conduit 17 and 18 whereby when the plate 15 is clamped down on top of the container or can 13 and the injection nozzles 14, which preferably are of a length substantially equal to the depth of the container, projected therethrough, the lowering of their associate conduit and the plate covers the top of the can and the fingers or nozzles are pressed longitudinally throughout the bulk of the ice cream. Upon the application of pressure from a pump, not shown, syrup or other filling material is pumped downwardly to the bottom of

the fingers filling the same and displacing any ice cream which has been forced up in said fingers or injection nozzles, whereby the filling material completely fills said injection nozzles and upon progressive withdrawal of the fingers or nozzles from the ice cream by elevation of the conduit, etc., the syrup is deposited in the cores formed, in effect, in the ice cream by the projection of the nozzles therethrough.

In this form, the quantity of ice cream which is placed in the container would preferably be such that when it is forced upwardly or displaced in the container by the injection of the syrup therin that the container would be filled. In the form shown in Fig. 4, a pump and ratchet arrangement is shown and the ratcheting arrangement, such as is shown at 18, is preferably timed with the pump pressure so that a proper cooperative relationship is maintained between the depositing of ice cream in the container and the withdrawal of the syrup containing fingers from the container, the fingers or nozzles preferably following the ice cream or, stated in a different manner, being continually disposed a short distance below the level of the ice cream deposited in the container.

In the form shown in Fig. 5, it will be noted that I show syrup injection nozzles 20 of the type employed in my Patent No. 2,160,285, granted May 5, 1939, and project the tube 21 into the nozzle or funnel 20 through a side wall of a cream conduit discharging therein and that said tube 21 is provided with fingers 22—22—22 similar to those shown in Fig. 1 of the present application.

A pair of linked lever arm connections 23 and 24, disposed on the filling tube and the ice cream conduit respectively, may be employed in connection with the invention, shown in this figure of the drawing, whereby the movement of the ice cream and the filling material may be controlled or shut off.

In the form shown in Fig. 5, ice cream and filling material are adapted to simultaneously be deposited into packages of the type shown at 25, although any container may be employed in connection therewith. It is to be noted that in this form the injection nozzles are shown therein having their ends swaged inwardly and the nozzles are further shown as spaced inwardly a short distance from the end of the funnel 20.

I am aware that numerous and extensive deputures may be made without departing from the spirit of my invention or the scope of the appended claims, although I have described a preferred embodiment thereof.

I claim:

1. In an ice cream confection making apparatus, an extrusion nozzle adapted to be secured at one end to an ice cream making apparatus to have ice cream frozen to plastic consistency, supplied under pressure to said nozzle end and to be extruded therefrom, a filler nozzle having two

or more downwardly extending tubular fingers of different length and disposed generally parallel to each other, the ends of said tubular fingers being flattened and spaced inwardly from the end of said ice cream nozzle, whereby said ice cream upon extrusion is adapted to have several streams of filling material disposed therein in ribboned effect.

2. The method of making a flavored confection of the character described which comprises partially filling a container with a frozen substance, projecting a plurality of filling nozzles therein, pumping filling material under pressure into said nozzles and withdrawing said nozzles from said frozen material whereby cores of said filling material are disposed within said frozen material, adding additional frozen material thereto concurrently with the pumping of filling material whereby the mass of said further frozen material effects the disposition of said filling material throughout the cream.

3. The method of forming a flavored confection which comprises projecting a filling nozzle into a body of frozen material, extruding the filling under pressure into said frozen material, adding further frozen material thereto and further filling material whereby said frozen material is provided with cores of filling material, the weight of the frozen material and the flavored material causing the frozen confection to be ribboned in the container whereby the said material is given a variegated effect.

4. The method of making flavored confections of the character described which comprises partially filling a container with a frozen substance, projecting a plurality of filling nozzles therein, pumping further frozen substance into the container and injecting filling material concurrently therewith under pressure into said nozzles, withdrawing said nozzles from the container a short distance inwardly of the changing level of the frozen substance in the container, whereby said frozen substance is provided with streams of said filling material.

5. The method of making flavored confections of the character described which comprises partially filling a container with a frozen substance, projecting a plurality of filling nozzles therein, pumping further frozen substance into the container and injecting filling material under pressure concurrently therewith into said nozzles, the flow of the frozen material into the container and the filling material into the frozen substance being controlled in relation to each other whereby upon withdrawal of said nozzles from the container the filling material is disposed a short distance inwardly of the changing level of the frozen substance in the container, whereby said frozen substance is provided with streams of said filling material.

ALMOND C. ROUTH.

EXHIBIT Q

PATENT SPECIFICATION

(11)

1583351

1583351

(21) Application No. 17404/77 (22) Filed 26 Apr 1977 (19)

(23) Complete Specification Filed 12 Apr 1978

(44) Complete Specification Published 28 Jan 1981

(51) INT.CL.³ B65D 3/02

(52) Index at Acceptance B8T 71
A2B 312 401 411 412 504 613 621
660 BD
B8C 15A 15E1 21A1

(72) Inventor: Alastair John McMahon



(54) FILLING METHOD

(71) We, GENERAL FOODS LIMITED, a British Company of Banbury, Oxon, do hereby declare the invention, for which we pray that a Patent may be granted to us, and the method 5 by which it is to be performed, to be particularly described in and by the following statement:—

This invention relates to metal cans containing two flowable edible materials and to a 10 method and apparatus for providing such cans.

Liquid foodstuffs are typically canned on a continuous basis using a slit filler. The filling unit comprise an elongated downwardly-directed filling orifice through which the liquid foodstuff, which has been previously bulk sterilized, is pumped. A continuous line of open top cans, touching one another to minimize spillage, passes underneath the filling unit along the line of the filling orifice 20 at such a speed that each can emerges partially or completely filled, as desired. If it is desired to incorporate two different liquid foodstuffs in a can, the conventional practice is to use two filling units in sequence, 25 so that, if their viscosities are high enough to prevent mixing, one foodstuff sits on top of the other in the can. The filled cans pass to a seaming unit, situated in the same conveyor line, which attaches the seam lids onto 30 each of the filled cans in turn. The whole operation is performed aseptically, generally in an atmosphere of super-heated steam.

The rate determining steps are those of the bulk sterilization of the liquid foodstuff, 35 and of the seaming unit. The whole operation is carried out continuously at high speed, with a throughput of typically 300-350 cans, per minute. Suitable canning equipment for this purpose is supplied, for example by James Dole Engineering Co., and is described in various Patents in that name, including for example U.S. Patents 40 2,667,424 (1954) and 3,442,304 (1969).

This technique is particularly suitable 45 for canning ready-to-serve puddings, custards and other dessert sauce compositions which are 'heat sensitive'. A disadvantage is that, though it can be used to meter two or more liquids into the can in two stages these

liquids can be separated only along a horizontal boundary. It would be commercially valuable to be able to meter liquids into a can which were separate from one another but in physical contact with one another along a vertical boundary. An advantage of cans so filled would be that each can could be used to provide several substantially identical servings. That is to say, each portion taken out of the can would have approximately the same proportion of the two ingredients. Side-by-side filling of this kind can be effected manually by providing a partition in the container, supplying different liquids to the container on opposite sides of the partition, and subsequently removing the partition; a technique along these lines has been described in British Patent Specification No. 1,218,280. However, the technique is necessarily a slow one and quite unsuited to the rapid continuous aseptic filling of metal cans with which this invention is concerned. These cans are of the conventional open-top type, with outwardly extending flanges (or lips) at their mouth, to enable them to be sealed or closed. These lips are especially advantageous in continuous slit filling, on account of their overlap in a moving sequence of such cans on a belt, which allows uninterrupted flow discharge without spillage.

In one aspect, the present invention provides a generally cylindrical metal can aseptically containing two flowable edible materials which are separate from one another but are in physical contact with one another along a boundary which runs substantially parallel to the axis of the can. By 'flowable edible material' we mean a material which can be made to flow, if necessary by heating, to a sufficient extent to enable it to be filled into the can through an orifice. The material in the can does not necessarily have to be capable of flowing at ambient temperature or at the time or temperature at which the can is opened. It is perfectly possible for the flowable edible material to contain dispersed solids, such as chunks of fruit in a fruit sauce, provided that it is flowable as

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a whole. In principle, it is perfectly possible for the can to contain other flowable or non-flowable (e.g. solid) edible materials in addition to the two previously noted.

5 In another aspect, the invention provides apparatus for providing metal cans aseptically filled with two flowable edible materials which are separate from one another but are in physical contact with one another 10 along a substantially vertical boundary, which apparatus comprises a housing aseptically enclosing:-

A filling unit comprising two adjacent elongated downwardly-directed filling orifices,

15 means for supplying a bulk-sterilized flowable edible material to each of the said filling orifices,

means for passing a continuous line of metal cans in contact with one another under- 20 neath the filling unit, and

means for closing the metal cans which have passed under the filling unit.

In a further aspect, the invention provides 25 a method for providing metal cans aseptically filled with two flowable edible materials which are separate from one another but are in physical contact with one another along a substantially vertical boundary, which

30 method comprises providing a filling unit comprising two adjacent elongated downwardly-directed filling orifices and passing to each filling orifice a liquid edible material having a viscosity of at least 20 poise but 35 low enough to be dispensed through said filling orifice, continuously filling metal cans with the two edible materials by passing a continuous line of cans in contact with one another underneath the filling 40 unit, and closing the filled cans, the whole operation being performed under aseptic conditions.

The invention is of particular interest 45 in relation to ready-to-serve puddings, that is to say foodstuffs which would normally be served cold straight from the can. Such puddings are typically water-or milk-based with suitable thickening or gelling agents. The finished product when served, may be 50 either set or not. There is, however, no reason in principle why savoury formulations such as soups, mousse and fish or meat foodstuffs should not also be packaged in this way. In order to enhance consumer appeal, it is preferred, from the view point of 55 consumer appeal, that the two flowable edible materials should be of different colours, or alternatively of different shades of the same colour; and/or different mouth-feel. It is preferred, from the view point of 60 consumer appeal, that the physical consistency of the two layers, at the time of consumption, should be similar in thickness. In this way, the two layers can be spooned out uniformly and will not smear. For example, 65 a water-based layer can be suitably thickened by the addition of gums like xanthan gum or locust bean gum, to give a similar consistency in the stored can to that of a milk-based gel in the second layer. The proportions of the two flowable edible materials can be equal or unequal as desired. The parameters controlling the proportions in which the two materials are fed into the can are the size of the filling orifice, the viscosity of the flowable edible material, and the pressure used to force it through the orifice. These parameters can readily be controlled by conventional methods. As the lengths of the slit-shaped filling orifices are preferably the same, control may be exercised by increasing or decreasing the width of the slits.

70 Parameters that affect the filling process are surface tension, temperature and viscosity of the liquid edible material, of which the most important is viscosity. If the viscosity of either or both of the components is too low, less than about 20 poise, a high degree of mixing will occur through the filling and subsequent sealing processes. It is preferred that the major component should have a viscosity of 35 to 80 poise, and the minor component of from 55 to 100 poise, both measured on entry to the can. Higher viscosities can quite readily be used, provided that the material is flowable enough to be capable of being forced through the filling orifice. The viscosity figures quoted here are determined, using a Brookfield Viscometer (No. 5 Spindle at 50 rpm).

75 Surface tension may be important, as the phenomenon of folding may occur through the filling head due to second order viscosity effects. This problem may be mitigated by the use of surface active agents to reduce the second order viscosity effects, but maintaining the first order viscosity.

80 Temperature may be important, for if there is too high a temperature difference between the components filled into the can, some mixing may occur by convection. However, this problem should not be severe provided that the viscosities of the components are high enough.

85 The two flowable edible materials which are to be in contact should be formulated in such a way that the water activities of the two are balanced according to the well known physical factors governing the stability of such systems. Water soluble colour may still be transmitted across the boundary by molecular diffusion, but with the area of contact between two vertical layers being small, this effect is minimised and is further diminished by the viscosity of the flowable materials.

90 The boundary between the two flowable edible materials dispensed into a can as described above will be substantially planar, and will be visible, on opening the can as a substantially straight line. Consumer appeal

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can be further enhanced by giving this straight line a curve, and this can very readily be achieved, according to a subsidiary feature of this invention, by swirling 5 the contents of the can.

Aseptically canned products after filling have to have can lids sealed on within the aseptic unit. Such seamers in commercial practice operate on a number of different 10 principles, essentially divided into those where the seaming head rotates against a fixed can, and those where the can is rotated against a fixed seaming head. It has been found that the use of a rotating filled can against a fixed seaming head can produce the desired swirl effect in the contents of a twin-filled can. The speed and time of rotation of the can has to be carefully adjusted in relation to the viscosity of the contents of 15 the can. Typically a can may be rotated at 1400 rpm for approximately 1 second on a 300 can per minute Dole filling unit; this action will provide a swirl effect provided that the viscosity of the two edible components are from 20 to 150 poise and the head space of the cans is from 1/8" to 7/8". In general, speeds of rotation are from 300 to 3000 rpm for from 0.3 to 3 seconds can provide, depending on the viscosity of the 20 30 flowable edible materials in the can, a desired swirl effect.

The invention will be further described with reference to the accompanying drawings, in which:-

35 Figure 1 is a perspective view of apparatus including a filling unit according to the invention, and

Figures 2A and 2B show filled cans before and after the swirling operation.

40 Referring to Figure 1, a filling unit 10 comprises two adjacent downwardly-directed filling orifices 12 and 14. The length of the unit 10, and of each orifice 12, is Z. The width of orifice 12 is Y, and of orifice 14 is X. The filling unit 10 is a hollow vessel divided by a divider 16 (shown dotted in Figure 1) into two regions. A flowable edible material, such as custard which has been pre-sterilized in bulk, is supplied via 50 pipe 18 to one region of the filling unit 10 and thence to the filling orifice 12. A different flowable edible material, for example a fruit sauce which has also been pre-sterilized in bulk, is supplied via a pipe 20 to the other region of the filling unit 10, and thence to the filling orifice 14. The pressure in the pipes 18 and 20 is chosen in conjunction with the widths, Y and X of the filling orifices 12 and 14, 55 so that custard and fruit sauce are dispensed in the desired proportions of about 2 to 1 by volume.

A continuous line of metal cans 22 in contact with one another pass along a conveyor 65 belt 24 under the filling unit 10 at such a

speed that they emerge just filled with edible material. The filled cans are then passed to a conventional seaming unit (not shown) of the kind where the can is rotated against a fixed seaming head, where lids are applied and sealed in position.

70 Figure 2A is a perspective view of a can 22 which has been filled with a milk based pudding 26 and fruit sauce 28 in the filling unit shown in Figure 1, but has not yet passed to the seaming unit. The boundary between the two materials 26 and 28 is therefore a straight line. Figure 2B shows the same can, with the lid removed after passage through the seaming unit. The boundary between the two components 26 and 28 is now curved giving the whole an attractive swirled appearance.

WHAT WE CLAIM IS:-

1. A generally cylindrical metal can aseptically containing two flowable edible materials which are separate from one another but are in physical contact with one another along a boundary which runs substantially parallel to the axis of the can.

80 2. A can as claimed in claim 1, wherein the boundary between the two edible flowable materials is planar.

3. A can as claimed in claim 1, wherein the boundary between the two edible flowable materials is curved in a direction parallel to the axis of the can, whereby the boundary appears on the top surface of the contents of the can as a curved line.

85 4. Apparatus for providing metal cans aseptically filled with two flowable edible materials which are separate from one another but are in physical contact with one another along a substantially vertical boundary, which apparatus comprises a housing aseptically enclosing:-

90 a filling unit comprising two adjacent elongated downwardly-directed filling orifices,

means for supplying a bulk-sterilized flowable edible material to each of the said filling orifices,

means for passing a continuous line of metal cans in contact with one another underneath the filling unit, and

means for closing the metal cans which have passed under the filling unit.

95 5. Apparatus as claimed in claim 4 and substantially as hereinbefore described in Figure 1 of the drawings.

100 6. A method for providing metal cans aseptically filled with two flowable edible materials which are separate from one another but are in physical contact with one another along a substantially vertical boundary, which method comprises providing a filling unit comprising two adjacent elongated downwardly-directed filling orifices and passing to each filling orifice a liquid edible material having a viscosity of at least 125 20

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poise but low enough to be dispensed through said filling orifice, continuously filling metal cans with the two edible materials by passing a continuous line of cans in contact with one another underneath the filling unit, and closing the filled cans, the whole operation being performed under aseptic conditions.

7. A method as claimed in claim 6, where-
10 in the sizes of the filling orifices, the vis-
cosities of the flowable edible materials,
and the pressures used to force them through
the orifices, are chosen to determine the
proportion in which the two edible materials
are fed into the cans.

15 8. A method as claimed in claim 6 or 7,
wherein a major proportion of one edible
material and a minor proportion of the other
edible material are fed into the can.

9. A method as claimed in claim 8, where-
20 in the major component has a viscosity of
35 to 80 poise and the minor component a
viscosity of 55 to 100 poise, both measured
on entry to the can.

10. A method as claimed in any one of
claims 6 to 9, wherein the filled cans are
closed by means of a seamer in which the can
is rotated against a fixed seaming head, where-
by the contents of the can are given a
swirled appearance.

11. A method as claimed in claim 10,
wherein the viscosity of the two materials
is in the range of 20 to 150 poise and the head
space in the can is from 1/8" to 7/8", and the
can is rotated in the seamer at from 300 to
3000 rpm for from 0.3 to 3 seconds.

12. Metal cans as claimed in any one of
the claims 1 to 3, aseptically filled with two
flowable edible materials by the method of
any one of claims 6 to 11.

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2 SHEETS This drawing is a reproduction of
the Original on a reduced scale
Sheet 2

FIG. 2a

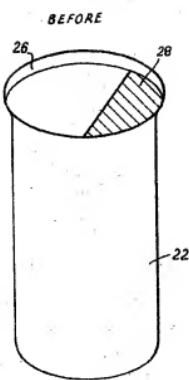
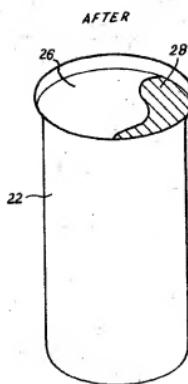


FIG. 2b



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Sheet 1

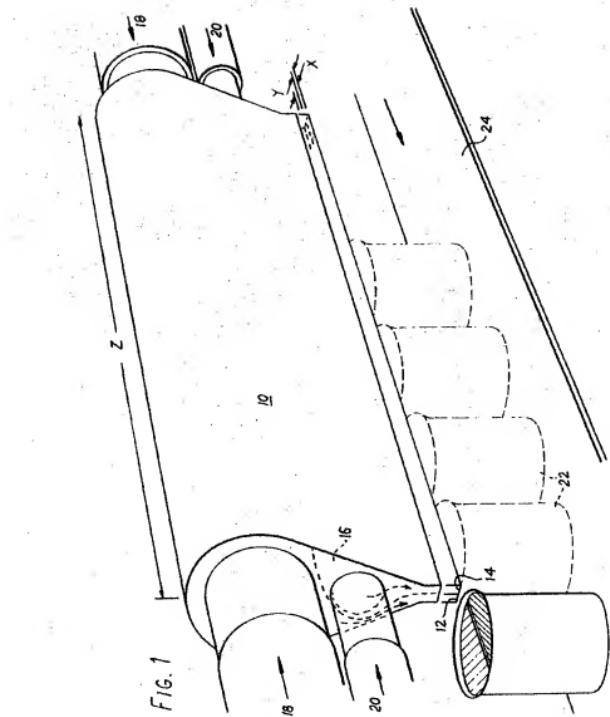


EXHIBIT R

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⑪ Ensemble pour produit alimentaire comprenant un tube contenant un produit à au moins deux constituants.

⑪ L'invention concerne un ensemble pour produit alimentaire comprenant un tube contenant un produit à au moins deux constituants différents, dans lequel le tube est un tube normal et les constituants (6, 7) sont répartis autour de l'axe de symétrie (8) du tube de manière alternée avec chaque constituant sur toute la hauteur dudit tube.

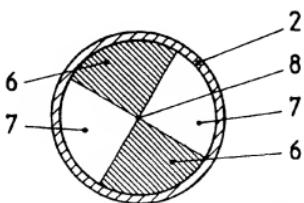


Figure 2

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L'invention concerne un ensemble pour produit alimentaire comprenant un tube contenant un produit à au moins deux constituants.

On connaît déjà des tubes contenant deux constituants. Le brevet CH 670'612 concerne un emballage pour de la mayonnaise et du ketchup, mais dans lequel on utilise un tube avec un adaptateur spécial pour pouvoir séparer les deux constituants. D'autre part, le brevet DE 1185981 concerne un procédé de remplissage de tube classique, dans lequel on dose dans ledit tube une même masse mais colorée différemment. Le premier brevet utilise un tube spécial et le second ne concerne pas le dosage à proprement parler de constituants différents.

Le but de la présente invention est de pouvoir présenter un emballage en tube, dans lequel on utilise un tube classique, qui contient toutefois un produit à deux constituants différents.

L'invention concerne un ensemble pour produit alimentaire comprenant un tube contenant un produit à au moins deux constituants, dans lequel le tube est un tube normal et les constituants sont répartis autour de l'axe de symétrie du tube de manière alternée avec chaque constituant sur toute la hauteur dudit tube.

Par tube normal, on entend un tube comportant un corps de tube, une embouchure pour la sortie du produit et un capuchon de fermeture tel qu'on l'utilise classiquement pour le conditionnement de mayonnaise, par exemple.

Par constituants différents, on entend des constituants ayant des compositions chimiques différentes, comme par exemple les combinaisons suivantes : mayonnaise/ketchup, moutarde/ketchup, mayonnaise/moutarde, moutarde et/ou ketchup contenant un maximum de 40% d'huile et toute autre combinaison dans le domaine alimentaire avec des constituants sucrés comme crème chocolat (mélange de chocolat, graisse et épaississant) / crème de chocolat blanc (chocolat blanc, graisse et épaississant).

Le but de la présente invention est de pouvoir distribuer à partir d'un tube classique simultanément au moins deux produits soit dans une assiette pour la consommation directe, soit dans un but de décoration, par exemple sur des canapés.

On pourrait également envisager la présence dans le tube de trois constituants, mais la version avec deux constituants est préférée.

Avec les deux constituants envisagés, on calcule que ceux-ci soient dosés en quantités à peu près égales (en volume) et on les dose dans le tube de manière à avoir deux zones de l'un des constituants et deux zones de l'autre. On pourrait également envisager trois zones et plus, mais la solution de deux zones est la préférée.

Il est bien entendu que les deux constituants ayant des zones de contact sur toute la hauteur du tube et devant être distribués simultanément et de manière égale, il faut qu'ils obéissent à certaines contraintes physiques. Par exemple, pour que les constituants soient bien distribués ensemble, il faut que le seuil d'écoulement de la mayonnaise soit compris entre 100 et 140 Pa et celui du ketchup et de la moutarde entre 60 et 120 Pa. De préférence, le seuil d'écoulement de la mayonnaise est de l'ordre de 120 Pa.

Toujours pour la même combinaison, si on veut être sûr que les produits ne se mélangent pas quand on les distribue, il faut que la viscosité de la mayonnaise soit comprise entre 16000 et 25000 cP et celle du ketchup et de la moutarde entre 12000 et 22000 cP. De préférence, pour la mayonnaise, la viscosité est comprise entre 18000 et 20000 cP. Il est bien entendu que les valeurs de seuil d'écoulement et de viscosité du ketchup et de la moutarde restent aussi valables si ces composés contiennent jusqu'à 40% d'huile. Par huile, on entend normalement un mélange de ketchup respectivement de moutarde avec de la mayonnaise.

Les mesures de ces deux grandeurs physiques sont faites avec un appareil Contraves Rheomat 108 E/R, Messystem 13.

Pour la mayonnaise, on travaille avec une teneur en huile comprise entre 40 et 80 %, de préférence une teneur en huile comprise entre 70 et 80 %.

Le produit en tube obtenu contenant les deux constituants est conservable sans réfrigération pendant une durée minimum de 6 mois.

Pour des raisons de viscosité, il est nécessaire que la phase aqueuse, à savoir la phase ketchup et moutarde, contienne entre 2 et 8 % d'épaississant, cet épaississant étant de préférence de l'amidon modifié. Le pH des deux constituants est acide, compris entre 3,4 et 4.

Pour le remplissage du tube, on utilise une buse spéciale. Avant le remplissage, il faut pasteuriser le ketchup et la moutarde pour permettre la durée de conservation souhaitée. Concernant la mayonnaise, elle est préparée de manière classique et ne nécessite aucun traitement thermique. Le remplissage dans le tube se fait sur un dispositif aseptique ou hautement hygiénique.

La suite de la description est faite en référence aux dessins sur lesquels

Fig. 1 est une représentation schématique de l'emballage selon l'invention et

Fig. 2 est une coupe selon la ligne 2-2 de la Fig. 1.

Le tube (1) comprend un fond de tube scellé (3), un corps de tube (2), une embouchure (4) pour la sortie des deux constituants et un bouchon (5) pour fermer le tube. La combinaison des deux constituants est dans le tube, comme on le voit plus précisément sur la Fig. 2 : on a le ketchup (6) et la mayonnaise (7) répartis autour de l'axe de symétrie (8) du tube (1). Ces constituants sont répartis en deux zones distinctes.

Lorsqu'on utilise le tube, on le presse et les deux constituants sortent simultanément et en quantités égales : aucun mélange des deux constituants n'est visible, même après une conservation de 6 mois sans réfrigération.

On dispose selon l'invention d'un tube combinant deux constituants différents qui ne se mélangent pas, même après de multiples pressions sur ledit tube, permettant ainsi jusqu'au vidage complet du tube de doser régulièrement les deux constituants.

La suite de la description est faite en référence aux exemples.

Exemple 1.

On prépare une phase aqueuse de ketchup ayant un seuil d'écoulement de 90 Pa et une viscosité de 18000 cP et la composition suivante :

Concentré de tomates	17%
Vinaigre	26%
Sucre	25,2%
Eau	24%
Sel	2%
Epaississant	5,7%
Epices	0,1%

On pasteurise ce ketchup à 75 °C pendant 10 min.

On prépare également une mayonnaise de manière classique : celle-ci a un seuil d'écoulement de 118 Pa et une viscosité de 18500 cP et la composition suivante

Huile de tournesol	80%
jaune d'oeuf	6%
Vinaigre	10%
Epices	1%
sel	1%
eaу	2%

Ces deux constituants sont amenés sur un système hautement hygiénique vers une buse de dosage qui remplit un tube normal à raison de 200 g par constituant. On obtient un tube ayant une bonne simultanéité de dosage des deux constituants, sans aucun mélange desdits constituants.

Exemple 2.

On reprend la composition de ketchup de l'exemple précédent qu'on pasteurise comme précédemment.

On prépare d'autre part, une phase grasse contenant

15 % de mayonnaise (selon l'exemple 1)

2,7 % d'épaississant et

82,3 % de moutarde douce.

On amène ces deux constituants dans un système de remplissage hygiénique et on remplit les tubes avec une buse spéciale.

On obtient dans ce cas également un système à deux constituants, qui restent bien séparés même après 6 mois de stockage.

L'emballage selon l'invention permet donc de mettre à disposition du consommateur un produit de longue conservation obtenu par des méthodes classiques en respectant seulement certains paramètres physiques, chimiques ou physico-chimiques permettant de rendre possible la co-habitation dans un tube classique de constituants différents.

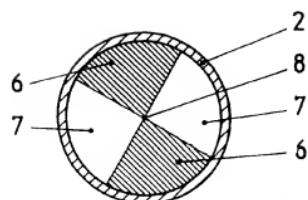
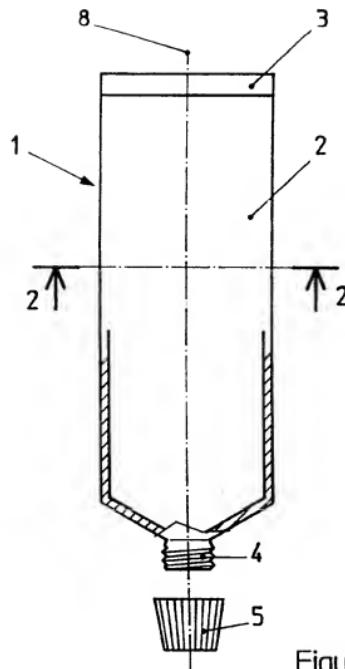
Revendications

1. Ensemble pour produit alimentaire comprenant un tube contenant un produit à au moins deux constituants différents, caractérisé en ce que le tube est un tube normal et en ce que les constituants sont répartis autour de l'axe de symétrie du tube de manière alternée avec chaque constituant sur toute la hauteur dudit tube.
2. Ensemble selon la revendication 1, caractérisé en ce qu'il contient deux constituants qui sont la mayonnaise et le ketchup.
3. Ensemble selon la revendication 1, caractérisé en ce qu'il contient deux constituants qui sont la moutarde et le ketchup.
4. Ensemble selon la revendication 1, caractérisé en ce que la moutarde et/ou le ketchup contiennent un maximum de 40% d'huile.
5. Ensemble selon l'une des revendications 1 à 4, caractérisé en ce que les deux constituants sont en quantités à peu près égales.
6. Ensemble selon l'une des revendications 1 à 6, caractérisé en ce que chaque constituant est présent sur deux zones.
7. Ensemble selon l'une des revendications 1 à 8, caractérisé en ce que le seuil d'écoulement de la mayonnaise est compris entre 100 et 140 Pa et celui du ketchup et de la moutarde entre 60 et 120 Pa.
8. Ensemble selon l'une des revendications 1 à 7, caractérisé en ce que la viscosité de la mayonnaise est comprise entre 16000 et 25000cP et celle du ketchup et de la moutarde entre 12000 et 22000 cP.
9. Ensemble selon l'une des revendications 1,2 et 5 à 8, caractérisé en ce que la teneur en huile de la mayonnaise est comprise entre 70 et 80%.
10. Ensemble selon l'une des revendications 1 à 9, caractérisé en ce que le ketchup et de la moutarde contiennent entre 2 et 8% d'épaississant.
11. Ensemble selon l'une des revendications 1 à 10, caractérisé en ce que l'épaississant est de l'amidon modifié.
12. Ensemble selon l'une des revendications 1 à 11, caractérisé en ce que la mayonnaise, le ketchup et la moutarde ont un pH compris entre 3,4 et 4.

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RAPPORT DE RECHERCHE EUROPEENNE

Numéro de la demande
EP 94 10 5157

DOCUMENTS CONSIDERES COMME PERTINENTS

Catégorie	Citation du document avec indication, en cas de besoin, des parties pertinentes	Revendication concernée	CLASSEMENT DE LA DEMANDE (Int.Cl.)
Y, D	CH-A-670 612 (NAEF) * page 2, colonne de gauche, ligne 27 - colonne de droite, ligne 51; figure 1 - ---	1-3,5,6	B65D1/00 B65D35/24 B65D77//n/a A23L/225 A23L/24
Y	FR-A-2 248 023 (HENKEL & CIE.) * page 2, ligne 2 - ligne 6 * * page 3, ligne 23 - page 4, ligne 13; figures 1-6 *	1-3,5,6	
A	WO-A-92 12911 (L'OREAL) * figure 5 *	1	
A	EP-A-0 243 321 (BIOTECH S.A.) * figures 1,2 *	1	
A	GB-A-1 583 351 (GENERAL FOODS LTD.) * page 3, ligne 40 - ligne 83; figures 1-2B *	1	
A	EP-A-0 546 215 (SOC. DES PRODUITS NESTLE) * revendication 1 *	7,9	DOMAINES TECHNIQUES RECHERCHES (Int.Cl.) B65D A23L
Le présent rapport a été établi pour toutes les revendications			
Lieu de la recherche		Date d'échéancement de la recherche	Exécutant
LA HAYE		21 Septembre 1994	Berrington, N
CATÉGORIE DES DOCUMENTS CITÉS			
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IMAGE FILENAME WPHOHJW1.GIF

-2- (WPAT)

ACCESSION NUMBER 95-338181/44

SECONDARY ACCESSION C95-149076

KRPX N95-253667

TITLE Tube contg. two food products in separate regions - is used for simultaneous delivery of both without mixing partic. ketchup and either mayonnaise or mustard

DERWENT CLASSES D13 Q32 Q34

PATENT ASSIGNEE (NESTLÉ) SOC PROD NESTLE SA

INVENTORS ERRASS W, DIETHALM R

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MAIN INT'L CLASS.
SECONDARY INT'L. CLASS.
ADD'L INT'L CLASS.
ABSTRACT

Assembly for food product comprises a tube contg. at least 2 constituents which are distributed around the tube's axis of symmetry in alternating fashion, each constituent extending the entire length of the tube.

The mustard and ketchup contain at most 40% oil, plus 2-8% thickener (partic. modified starch), and has flow threshold (Ft) 60-120 Pa and viscosity (V) 12000-22000 cps. The mayonnaise contains 70-80% oil, and has Ft 100-140 (pref. about 120) Pa and V 16000-25000 (pref. 18000-20000) cps. All components have pH 3.4-4.

USE - Tube esp. contains ketchup plus mayonnaise or mustard but may also contain chocolate and white chocolate creams.

ADVANTAGE - Device allows simultaneous delivery

of both constituents, without visible mixing, from a normal tube (i.e. one without a special adaptor), either for direct consumption or for decoration. The tubes can be stored without refrigeration for at least 6 months. (Dwg. 2/2)

SS 2?

EXHIBIT S

(12) PATENT
(19) AUSTRALIAN PATENT OFFICE

(11) Application No. AU 199650797 B2
(10) Patent No. 714008

(54) Title
Combination comprising a pasty food and a package

(51) ⁶ International Patent Classification(s)
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**(12) PATENT ABRIDGMENT (11) Document No. AU-B-50797/96
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(54) Title
COMBINATION COMPRISING A PASTY FOOD AND A PACKAGE
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(57) Claim

ABSTRACT

The invention relates to a combination of food and symmetrical package (1), the package containing a food having at least two components (3), (4), containing in each case one of these components alternating along the axis of symmetry and these 5 components having a Bostwick viscosity between 40 and 60 mm.

AUSTRALIA

PATENTS ACT 1990

COMPLETE SPECIFICATION

FOR A STANDARD PATENT

ORIGINAL

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Invention Title: "COMBINATION COMPRISING A PASTY FOOD AND
A PACKAGE"

The following statement is a full description of this invention, including the best method of performing it known to us:-

Combination comprising a pasty food and a package

The invention relates to a combination comprising a pasty food and a symmetrical package which contains a food having at least two components and which contains in each case one of these components alternating along the axis of symmetry.

5 French Patent No. 2248023 already relates to a package of this type having two different components, which comprise a fatty phase and an aqueous phase. However, this patent is restricted to the cosmetics sector. A gelation process of the product is utilized in the package with the aid of a mould piece to be removed subsequently.

The object underlying the invention is to have a combination available which
10 contains a food having at least two components separately. Storage trials have shown that all products filled as two or more phases have a flavour advantage in comparison to mixed versions having an identical formula. In product combinations of this type, however, special adaptations of the formula are necessary. For example, possible migration processes can be prevented by exchanging oil-soluble colorants for water-
15 soluble colorants.

According to a first aspect the present invention provides an assemblage providing a composite food product comprising a container having a body which extends to a container opening with an interior axis of symmetry which extends from a position with respect to the container opening to an opposing container base, and at least two food-
20 component phases which are contained within the container, a first food-component phase comprising a food substance and a water constituent and a second food-component phase comprising a food substance and oil and water constituents, the oil being present in an amount of from 10% to 80% by weight, wherein the food-component phases have a



Bostwick viscosity between 40 mm and 60 mm and are arranged symmetrically with respect to the axis and to contact one another side-by-side.

Unless the context clearly requires otherwise, throughout the description and the claims, the words 'comprise', 'comprising', and the like are to be construed in an

5 inclusive sense as opposed to an exclusive or exhaustive sense; that is to say, in the sense of "including, but not limited to".

Bostwick viscosity is taken to mean the measurement of the flow path of a product in the course of 30 seconds at 20°C. This measurement is carried out with an instrument from Kinematica AG (Littau, Switzerland).

10 Pasty foods are taken to mean those foods which fall into the abovementioned viscosity range. Preferably, a combination of mayonnaise and a seasoning phase is used.

The symmetrical package is either a glass package or a plastic package, for example made of poly(ethylene terephthalate) or a tube package.

According to the invention, the number of the _____



components is not critical: at least two components are employed. Preferably, two components are available: for example, more likely, an oily and an aqueous phase. The combination mayonnaise with a seasoning phase is particularly preferred.

In order to achieve an optimal phase separation, a certain viscosity of the two phases must be achieved. Studies have shown that at too low a viscosity the phases run into one another and thus mix. If the viscosity is 10 too high, air inclusions between the phases occur and the phases do not lie smoothly on one another. On the other hand, the miscibility of the two phases is problematic in the application, i.e. the phases may be stirred together only with difficulty. Furthermore, it has been found that 15 the filling operation is likewise highly dependent on the viscosity.

As already mentioned above, the product texture and the optimum filling operation are achieved when the two components have a Bostwick viscosity between 40 and 20 60 mm. In the case of a combination mayonnaise/seasoning phase, a Bostwick viscosity of 40-50 mm is selected for the two phases.

The two components are filled in different types of shapes, such as spiral, in layers or vertically next to one another. Preference is given to spiral filling, in order to increase the optical attractiveness. However, this type of filling is not critical: many variations are possible. If layers are filled, the conditions are the same as mentioned above, i.e. the Bostwick viscosity of 30 the two phases is between 40 mm and 60 mm.

The number of zones of the two components is likewise not critical: three or more zones each may be employed. Preferably, there are two, three or four zones for each component.

As far as the composition is concerned, the mayonnaise contains between 10 and 80% of oil and the seasoning phase between 0 and 70% of oil, between 4 and 50% of water and between 0.2 and 6% of starch.

The seasoning phase comprises a base of vegetable

purée, fruit purée and other seasoning constituents, such as mustard in ground form or in the form of grains. The seasoning phase can also contain pieces, both vegetables and fruits, the size of the pieces being between 1 and 5 4 mm. The foodstuff comprises 20-80% mayonnaise and 80-20% seasoning phase, and is preferably made up of a approximately 50% of mayonnaise and approximately 50% of the seasoning phase.

10 The two-phase products are generally rated fresher, less acidic and more aromatic in comparison to a product filled in a mixed state.

15 The ingredients for the seasoning phase are mixed, pasteurized and recooled. These steps are necessary in order to ensure the microbiological safety and resistance to spoilage of the products. In addition, a heating step is necessary in order to gelatinize the modified starch.

20 As far as the mayonnaise is concerned, it is prepared in a conventional manner. The pH of the two components is in the acidic range, i.e. between 2.8 and 5.

25 The combinations of the invention can be stored without refrigeration for at least 12 months.

30 The two-phase products developed are packaged in jars by means of a coextrusion feeder which is equipped with piston valves. The products are filled in different types of shapes via a plurality of rotating nozzles with simultaneous lowering of the jar. This will be implemented industrially by means of longitudinally running feed belts and fillers connected in parallel.

35 The invention is now described in more detail in association with the drawings, where

Fig. 1 shows a diagrammatic representation of the package and

35 Fig. 2 shows a section along line A-A of Fig. 1.

The package (1) has a screwed-on lid (2) and

contains a product having two components (3) and (4). These components are filled in a spiral shape through an angle of 300°. The seasoning phase (3) comprises a base of tomatoes/squash and the mayonnaise (4) contains 50% oil.

5 The invention is now described in more detail in association with the examples, the ratio mayonnaise/seasoning phase being 50/50.

Example

10 A. Mayonnaise

A mayonnaise is used having the following composition (%)

Oil content	50
Egg yolk content	1.5
15 Seasoning constituents	3
Vinegar content 11%	4
Salt content	2
Starch content	2.2
20 Sugar content	9.2
Water content	28.1

The mayonnaise has a Bostwick viscosity of 50 mm.

B. Seasoning phase.

For the seasoning phase, 5 variants are listed which have a consistency like the mayonnaise phase used.

25 For all of these examples, the Bostwick viscosity was set to 40-50 mm. The contents are all in %.

Constituents	Mexicane	Tomato/ squash sauce	Green sauce	Mustard	Exotica
Vegetable puree	12	18	5	28 (mustard)	25 (fruit content)
Vegetable pieces/ herbs	17	35.1	15.6	0	0
5 Fat content	15	0	20	15.0	0
Starch content	3.6	2.6	3.5	0.2	4
10 Sugar content	12	12	8.5	6	21
Vinegar content 11%	4.8	7.5	4.6	9.0	5.5
Salt content	3.8	2.2	2.8	3.5	0.4
15 Flavouring constituents	2	0.1	6	0.2	0.5
Water content	29.8	22.5	34	38.1	43.6

Each of these components is then filled together
15 with the mayonnaise at 50-50 on a hygienic line.

THE CLAIMS DEFINITION THE INVENTION ARE AS FOLLOWS:

1. An assemblage providing a composite food product comprising a container having a body which extends to a container opening with an interior axis of symmetry which extends from a position with respect to the container opening to an opposing container base, and at least two food-component phases which are contained within the container, a first food-component phase comprising a food substance and a water constituent and a second food-component phase comprising a food substance and oil and water constituents, the oil being present in an amount of from 10% to 80% by weight, wherein the food-component phases have a Bostwick viscosity between 40 mm and 60 mm and 10 are arranged symmetrically with respect to the axis and to contact one another side-by-side.
2. An assemblage according to claim 1 wherein the second food component phase is a mayonnaise.
3. An assemblage according to claim 1 or 2 wherein the first food component phase 15 is an aqueous phase.
4. An assemblage according to claim 3 wherein the first food-component phase further comprises a starch constituent.
5. An assemblage according to claim 4 wherein the starch is a modified starch.
6. An assemblage according to claim 4 wherein the starch is in an amount of between 20 0.2% and 6% by weight.
7. An assemblage according to claim 1 or 2 wherein the first food substance is selected from the group consisting of a vegetable puree, a fruit puree, vegetable pieces, fruit pieces and a mustard.



8. An assemblage according to claim 7 wherein the first food-component phase further comprises a modified starch constituent.
9. An assemblage according to claim 1 or 2 wherein the first food-component phase further comprises an oil and the oil is in an amount of up to 70% by weight and the water constituent is in an amount of between 4% and 50% by weight.
10. An assemblage according to claim 9 wherein the first food-component phase is a mustard.
11. An assemblage according to claim 7 wherein the first food-component phase further comprises an oil and the oil is in an amount of up to 70% by weight and the water constituent is in an amount of between 4% and 50% by weight.
12. An assemblage according to claim 11 wherein the first food-component phase further comprises a starch.
13. An assemblage according to claim 1 wherein, with respect to a cross-section of the two food-component phases perpendicular to the container interior axis of symmetry, the two food-component phases are arranged side-by-side.
14. An assemblage according to claim 13 wherein the two food-component phases are arranged so that there are two first food-component phase zones and two second food-component phase zones which alternate.
15. An assemblage according to claim 1 wherein the side-by-side phases are arranged in a spiral form wherein the container interior axis of symmetry is an axis of the spiral form.



16. An assemblage comprising a pasty food and a symmetrical package, substantially as herein described with reference to the example or any one of the accompanying drawings.

DATED this 29th Day of September, 1999

5 SOCIETE DES PRODUITS NESTLE S.A.

Attorney: PAUL G. HARRISON
Fellow Institute of Patent Attorneys of Australia
of BALDWIN SHELSTON WATERS

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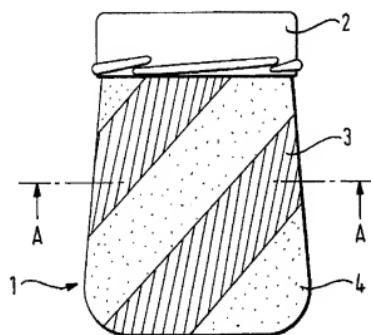


FIG. 1

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SERIALIZED
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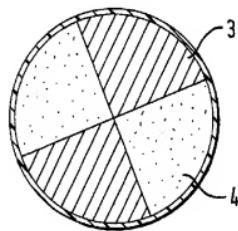


FIG. 2

EXHIBIT T

OA : 231677
FEB 1984

84-079174/13 Q.P. CORP. 18.08.82-JP-142101 (20.02.84) A23g-01 A23l-01/38 layered spread food - comprising peanut butter and chocolate spread	D13 QPPP 18.08.82 *JS 9031-677-A	D(3-E7, 3-H1)	229
<p>CB4-034023</p> <p>Compsn. is claimed which is produced by layering peanut butter and chocolate spread such that the boundaries between them in the vertical direction are distinct without being in peak-to-valley state.</p> <p>Process com: a filling peanut butter whose viscosity during filling is about 5000-150000 cps and chocolate spread whose viscosity during filling is about 10000-200000 cps into a container. Food can provide two kinds of taste at a time. (Spp Dwg.No.0/2)</p>			

⑪ 公開特許公報 (A)

昭59-31677

§ Int. Cl.³
A 23 L 1 38
A 23 G 1 00

識別記号

府内整理番号
6971-1B
6840-4B⑫ 公開 昭和59年(1984)2月20日
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審査請求 未請求

(全 5 頁)

多スプレッド食品とその製造方法

4

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公出 願 昭57(1982)8月18日
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明細書

1. 発明の名稱

スプレッド食品とその製造方法

2. 特許請求の範囲

(1) ピーナツバターとチヨコレートスプレッドとを両層の境界層が不規則な凹凸を示さない状態で容器内多層に充填して成るスプレッド食品。

(2) 充填時の粘度が約5万～15万cpsのピーナツバターと約10万cpsのチヨコレートスプレッドとを容器内多層に充填することを特徴とするスプレッド食品の製造方法。

3. 発明の詳細な説明

本発明は、前記スプレッド食品とその製造方法に関するもの。

ピーナツバターとチヨコレートスプレッドは各々パンなどに供應盤布して使用するスプレッド食品として一般に広く知られているものであり、当

者を一例に挙げてみても風味上の異和感は比較的少ない。また、各々の味も楽しめる。そこで、平均一つの容器に両者を混和せざりて層状式充填しておけば、便用時に両者を別々の容器から取り出す不徳さが嫌われ便利なものとなる。ところでこの目的のための充填方法としては、底層上部に開口部のある容器の底部に、ピーナツバター用及びチヨコレートスプレッド用の両種の吐出孔が交互に配置状況配列して下方に向いている充填ノズルを挿し入し、充填開始と共に軟性ノズルを容器から抜きながら充填を完了する方法が採用される。しかしながら、ピーナツバターとチヨコレートスプレッドは両者のなじみが悪いためかガラス製などの透明な容器に上部のノズルで充填してみると両者の境界層が不規則な凹凸を示し外観上よくないという問題があり、従つて両者の境界層が比較的直線的に近い製品は未だ市販されていない。

本発明の目的は、ピーナツバターとチヨコレートスプレッドが層状式容器に充填されておりしかも両者の境界層が不規則な凹凸を示さない直線な

スプレンド食品とその製造方法を提供することである。本発明者は上記の目的を達するべく種々試験検討していたところ、両者の充満度の低下を各々一過渡性で定めることによりそれが達せられるることを発見しようやくにしてそれを実現させたものである。

すなはち、本発明は、ビーナップターとチヨコレートスプレンドとを両者の境界線から貯蔵の凹凸を示さない状態で容器に多量で充満して貯蔵スプレンド食品、並びに、貯蔵時の充満度が約15万ccのビーナップターとの10万～5万ccのチヨコレートスプレンドとを容器に充満することを特徴とするスプレンド食品の製造方法よりも成らるものである。

以下本発明を実験に応用する。

本発明においてビーナップターとは、油炒め卵ビーナップ(ビーナップースト)パンショーニング、調味料(黄油、砂糖など)、乳化剤などを加えて混和したペースト状の東西をいい。通常水分が1～2%多くても4～5%多量で充満する性質の食品

(3)

を示さない状態とは、多孔ノズルを用いて透明な容器にその底面から口部へとビーナップター及びチヨコレートスプレンドとを多量となるように充満していった場合で、瓶が若干ひずみ跡な充満端面(一般に容器の底面)及び充満終端(一般に容器の口部)を除いた中央部であつて容器の内壁に覆われる境界線がその底面の5%の範囲内において瓶と底面の方向から見て四面または凸面があつても一つ以内の状態、もしくは2つ以上あるときは、それによる凹凸形状が同じ境界線上においての反復性、繰り返す境界線との間隔の相違性のいずれかを備えている状態をいう。これらの状態は充満に適し境界線の流れを垂直的(コントロールできること)に生ずるものである。底面の内壁の境界線の約5cmの底辺において凹面または凸面が一つ以内の状態のときは、境界線がほぼ直線に近いか一方のみのやういカーブ(状態)または凸面は一つ)となり、昔が武山あるときは、例えばなめらかな壁じま、例めじま、フセン状じまなどとなる。さらで凹面または凸面が2つ以上

である。また、チヨコレートスプレンドとは、カカオ(カカオマス粉末)、ココアパウダー(またはココア)を最も(通常2%以上)含むことによりチヨコレート色とカカオの風味を示し、甘味料(砂糖、ぶどう糖など)を含むことにより甘味を有するペースト状の食品をいい、好みにより玉ねぎ粉、油油(一般に油化油、ノヨードニンゲなどの常温油物)、乳化剤などを加えて水分の比較的小ない酸性食品とする場合と、主に糊化でんぶん、あらひの甘味粉代糖類(シラップ)などを使用して水分が比較的多い水性食品とする場合とがある。チヨコレートスプレンドを酸性食品とした場合には、製品の保存中に、チヨコレートスプレンド内部の水分がビーナップター層に移行することによりじそじそならビーナップターの変色が抑制される現象がある。本発明のスプレンド食品では、上記のビーナップターとチヨコレートスプレンド(酸性及び水性の両方を含む)とを両者の境界線が不規則な凹凸を示さない状態で容器に多量で充満してある。ここで両者の境界線が不規則な凹凸

(4)

あつて、同じ面上において反復性のあるとき、あるいは同じ境界線上では反復性がなくとも規則する境界線と相違形となるときは、一定のリズム感のある接線となる。第1四で示すのは、境界線が不規則な凹凸を示す場合の1例であり、また第2四で示すのは、不規則な凹凸を示さない場合の1例(ほど直線状)である。

なお四中、1は透明な容器、2はそのヤクツ、3及び4は各々その容器に多量で充満してあるチヨコレートスプレンドとビーナップター、5は両者の境界線である。

本発明で用いる容器は一般に定形性のあるもののが对象となるが定形性のない容器を対象としても差し支えない。また、容器の透明性は偏りついていた方が背面の外から境界線模様を美しくじむことができるので好ましいが、透明性が偏りついていないものでも差し支えなくこの場合には容器からスプレーその他のよりスプレンド食品をすくい取るときなど容器の断面模様などを楽しむことができる。多量とは、昔が少くとも2以上あることをいい。

(5)

-418-

(6)

着数が多くなつてひとつの着巾が狭くならてしまふ傾向となる。着の方は一般的にだして両端または両端の方向どちらか一方に向むかうとする傾向となる。

以上述べた本研究のスプレンド形状を組合せたものは、左横時の粘度が約3万～15万 cpo のビーナフバターと約10万～30万 cpo のナヨコレートスプレンドとを各端に多量に充満すればよい。ビーナフバターの粘度が約5万 cpo より低くなると、またナヨコレートスプレンドの粘度が約10万 cpo より高くなつても、さらにはビーナフバターの粘度が約15万 cpo を超えても、またナヨコレートスプレンドの粘度が約30万 cpo を超えても、ビーナフバターとナヨコレートスプレンドがなじみが悪くなるためか両者の接觸部が不滑潤となり動きが悪くなるからである。両端に充満した状態は、(1) 両端部、組合の溝部をしくして両端の接觸部によつてはかればよい。一般にガム質の粘度を下げるほど粘度は重量を増す。粘度を上げると粘度は重量を減くなる。ビーナフバターとナヨコレートスプレンドとを各端に多量に充満するには、

(7)

砂糖で充満して表面中5～15%の範囲内にすらると、ビーナフバターとナヨコレートスプレンドの接觸部もよいものとなる。

次に、本発明の効果を示す試験例、又は本発明の実施例を説明する。

試験例

ガラス瓶の凹凸状容器に直径約6cm、高さ約8cmとし、ビーナフバター用6個、ナヨコレートスプレンド用6個からなる計12個の吐出孔をノズルを挿入して充填を開始。充填しつつ瓶底面にノズルを引き抜きながらビーナフバター100g、ナヨコレートスプレンド100g計200gを容器内に充填した。

(1) その際、ナヨコレートスプレンドの充填時の粘度を15万 cpo (約10)と一定とし、ビーナフバター充填時の粘度をその粘度を変わることにより種々変えて充填されてできる両者の接觸部の状況を観察したところ第1表に示すとおりとなつた。

(7)

開発は、ビーナフバター用の吐出孔とナヨコレートスプレンド用の吐出孔とが各々異なり、瓶は上下方開口している多孔ノズルを容器内面に近く充填し充填しながら瓶底部分から引き抜くようなければならない。引き抜く方向を瓶底上向きとすれば瓶は倒つて後方倒たて方向のものとなり、瓶の上向きとすれば瓶の後方倒たて方向のものとなる。さらに瓶底上向きとすると共振ノズル式一定の空隙内面をなすると、後方倒は凸凹形状が共振性をもつた逆行機械を形成する。

以上、本実用のスプレンド粘度比より、外側上も充填されるより、ビーナフバターとナヨコレートスプレンドからなる複合の食品を充填することができる。また、本実用のスプレンド粘度の対応方法によれば、両者の粘度の調整により容器目的とする形状を製造することができる。

なお、このスプレンド形状を製造するに際して、ビーナフバターの甘味料を砂糖の甘味料と置換して砂糖中0～5%、実糖を1.5～1.5%の各濃度内にし、さらにはナヨコレートスプレンドの甘味料を

(8)

第1表

(粘度の単位:万 cpo)									
ビーナフバター の粘度	1	3	5	7.5	10	12.5	15	17.5	20
境界膜の状況	×	×	○	◎	●	◎	○	×	×

(2) また、ビーナフバターの充填時の粘度を10万 cpo (約10)と一定とし、ナヨコレートスプレンド充填時の粘度をその粘度を変えることにより種々変えて充填されてできる両者の境界膜の状況を観察したところ第2表に示すとおりとなつた。

第2表

ナヨコレートス プレンドの粘度	3	5	8	10	12.5	15	17.5	20	22	25	27	30
境界膜の状況	×	×	×	○	◎	●	◎	○	×	×	×	×

注(1) □中は、○、◎印は次のことを示す。

□:両者の上端部及び下端部を除く中央部約5cm周辺において、瓶は凸が底などなく程々変形状。

○:上部と同じ5cm周辺において、瓶底の凹部または凸部が1端。

(10)

パニラエフェクツン 0.1

合計 100.0(%)

131. 充填ノズルは、直徑約3cmで、下端部開口部
より幅3mm延長5mm(放射状方向の長さ)の
吐出孔12孔をピーナツバター用とチヨコレ
ースプレッド用とが交互に開口部となるよう
放射状に配列させたものを用いた。

上記の表から、ピーナツバターとチヨコレート
スプレッドとを事前に充填したときに境界線が不
規則な凹凸を示さないためには、充填時の粘度が
ピーナツバターは約5万～15万 cps であり、チヨ
コレートスプレッドは約10万～12万 cps であるこ
とが必要であることが理解される。

実施例1

チヨコレートスプレッドの供給配合は下記の
のと実験し、またその充填時の粘度は15万 cps と
一定とし、またピーナツバターの充填時の粘度は
10万 cps と一定とした以外は試験例と同じ操作同
じて多層スプレッド食品を製造した。このものも
層の境界線はより直線状をしていた。

(12)

が得られた。この被覆様は被覆するものが全てほ
う相混在でありリズム感のあるものであった。

4. 境界の簡単な説明

例は、ガラス製の容器にピーナツバターとチヨ
コレートスプレッドとをたての方向に多層に充填
したスプレッド食品の正面図をほどせ下さいで
示すものであり、その内第1回は実施例を示し、
また第2回は本発明の実施例を示す。

1…容器、2…キャップ、3…チヨコレートス
プレッド、4…ピーナツバター、5…境界線。

特許出願人 キューポー株式会社

代理人 鹿野清

×：上記と同じ5cm長において、凹凸または
凸部が2箇所以上であつて、同一境界線上
における各点の復原性及び強度の境界
線との相違性のいずれも見られない。

(2) ピーナツバター及びチヨコレードスプレッ
ドは下記の原料配合のものを用いた。

イ. ピーナツバター

ピーナツペースト	83.0(単位%)
ショートニング	9.9
ぶどう糖	4.0
食塩	1.0
脂肪酸モノグリセライド	2.1
合計	100.0(%)

ロ. チヨコレートスプレッド

カカオマス	7.0
砂糖	36.0
粉乳	22.0
バーム酒	34.4
レシチン	0.5

(11)

チヨコレートスプレッドの原料配合(単位%)

カカオマス	7.0	ショートニング	10.0
水あめ	35.0	キサンチンガム	0.3
ぶどう糖	5.0	レシチン	0.3
粉乳	23.0	食塩	0.2
デンプン	2.8	唐水	16.4
合計	100.0(%)		

実施例2

実施例1において充填ノズルを引き抜きながら
充填するに際しそのノズルにその端部を中心とする
ゆるい石臼り断面を与えたところ、ピーナツバ
ターとチヨコレートスプレッドの境界線がラセン
状を示す多層のスプレッド食品が得られ、その基
台に上記境界線は不規則な凹凸は見られなかつ
た。

実施例3

実施例1において充填ノズルを引き抜きながら
充填するに際しそのノズルに正規の断面を与えた
ところ、ピーナツバターとチヨコレートスプレッ
ドの境界線が放射状を示す多層のスプレッド食品

(13)

-420-

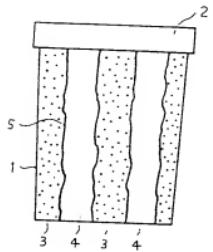
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11月25日 (5)

第1図



第2図

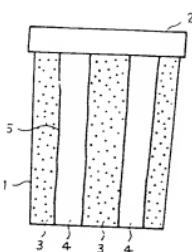


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QP CORP *J6 1100-174-A
20.10.84-JP-219392 (19.05.86) A23d-05 A23l-01/38
Food spread prep. - by putting into container peanut butter and
another oily spread, each with different viscosities
C66-071540

D(3-C)

Peanut butter and another oily spreading food can be put together
into a container, with clear segn. and vertical border lines. This is
carried out by using peanut butter having a viscosity of 50,000 to
150,000 cps and another oily spread having a viscosity of 100,000 to
200,000 cps.

USE - By controlling the viscosities of the two components, good
conditions for putting into the container can be achieved. (Opp
Dwg.No 0/2)

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⑭ 発明の名称 スプレッド食品とその製造方法

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明細書

1. 発明の名称

スプレッド食品とその製造方法

2. 特許請求の範囲

(1) ピーナツバターとの油性スプレッドとを両者の境界部が不規則な凹凸を示さない状態で容器に多層に充填して成るスプレッド食品。

(2) 充填時の粘度が約5万～15万cpsのピーナツバターと約10万～20万cpsの他の油性スプレッドとを容器に多層に充填することを特徴とするスプレッド食品の製造方法。

3. 発明の詳細な説明

(1) 產業上の利用分野
 本発明は、断続性スプレッド食品とその製造方法に関するもの。

(2) 従来の技術

ピーナツバターとの油性スプレッド、両者を混ぜて成るホワイトクリームなどは、各々多量の油性基材を含んでおりスプレッド食品として一般に広く知られている。

ものであり、両者と一緒に食してみても風味上の良相感は比較的少ない。また、各々の味も楽しめない。そこで、予め一つの容器に両者を混和せざりて層状に充填しておけば、使用時に両者を別々に容器から取り出す不便さが解消されるものとなる。

(3) 発明が解決しようとする問題点

ところでこの目的のための充填方法としては、通常上部に開口部のある容器の底部に、ピーナツバター用及び他の油性スプレッド用の両種の吐出孔が交互に放射状に配列して下方を向いている充填ノズルを挿入し、充填開始と共に環状ノズルを容器から抜きながら充填を完了する方法が採用される。しかしながら、ピーナツバターと他の油性スプレッドは両者のなじみが悪いためガラス製などの透明な容器に上記のノズルで充填してみると両者の境界部が不規則な凹凸を示し外観上よくないという問題があり、従って両者の境界部が比較的直線に近い製品は未だ市販されていない。

本発明の目的は、ピーナツバターと他の油性ス

プレッドが層状に容器に充満されておりしかも両者の境界線が不規則な凹凸を示さない形状をスプレッド食品とその製造方法を提供することである。本発明者は上記の目的を達するべく種々試験検討していたところ、両者の充満時の粘度を各々一定範囲に定めることによりその目的が達せられることを知りしょりやくにして本発明を完成させたものである。

(4) 問題点を解決するための手段

すなわち、本発明は、ビーナップターと他の油性スプレッドとを両層の境界線が不規則な凹凸を示さない状態で容器に多層に充満して販売するスプレッド食品、並びに、充満時の粘度が約5万～1.5万 cP のビーナップターと約10万～20万 cP の他の油性スプレッドとを容器に多層に充満することを特徴とするスプレッド食品の製造方法より成るものである。

以下本発明を詳細に説明する。

本発明においてビーナップターとは、塔沙香料ビーナップ(ビーナップマースト)にショートニング、

特開昭61-100174(2)

甘味料(麦芽、砂糖など)、乳化剤などを加えて温めしたペースト状の食品をいい、通常水分が1～2%多くても4～5%止りくらいの油性の食品油性のスプレッドである。また、他の油性のスプレッドとは、主に油脂と甘味料(砂糖、ぶどう糖など)を含むことにより甘味を有するペースト状の食品からビーナップターを除いたものをいう。油脂の相の中に甘味料などが分散した形で存在し、いずれにしても水分が比較的少ない油性の食品である。本発明の油性スプレッドからは、カカオ分(カカオマス香料、ココアパッターまたはココア)を含むものも除外される。カカオ分を含むとその味が強く影響しビーナップターの特有な風味が強めで乏しいものにならかである。なお、油脂には、クリームその他の油性のものから揮発性のものまで含まれ、その構成に限定はない。本発明のスプレッド食品では、上記のビーナップターと油性スプレッドとを両層の境界線が不規則な凹凸を示さない状態で容器に多層に充満してある。

ここで両層の境界線が不規則な凹凸を示さない状態とは、多孔ノズルを用いて透明な容器にその底面から口部へとビーナップター及び他の油性スプレッドとを多層となるように充満していった場合に、線が若干ひずみ勝ちを充満開始端(一般に容器の底面)及び充満終端(一般に容器の口部)を除いた中央部であって容器の内壁に現われる境界線がその長さ約5cmの範囲において縦と直角の方向から見て凹部または凸部があつても一つ以内の状態、もしくは2つ以上あるときには、それによる凹凸形状が同じ境界線上にについての反復性、複数する境界線との関係での相似性のいずれかを備えている状態をいう。これらの状態は充満に沿し境界線の流れを実質的にコントロールできるときに生ずるものである。反対して両層の境界線の約5cmの長さにおいて凹部または凸部が一つ以内の状態のみのゆるいカープ(故に凹部または凸部は一つ)となり、層が底面あるときは、例えばなめらかな、心地よい感覚をして貰おじま、ラセン状じまなどとなる。さ

らに凹部または凸部が2つ以上あって、同じ構上において反復性のあるとき、あるいは同じ構上では反復性がなくとも隣接する境界線と相似形となるときは、一定のリズム感のある様相となる。第1図で示すのは、境界線が不規則な凹凸を示す場合の1例であり、また第2図で示すのは、不規則な凹凸を示さない場合の1例(ほぼ直線状)である。

なお図中、1は透明な容器、2はそのキャップ、3及び4は各々その容器に多層に充満してある油性スプレッドとビーナップター、5は両層の境界線である。

本発明で用いる容器は一般には定形性あるものに対するとまるが定形性のない容器を対象としても差し支えない。また、容器の透明性は強力でない方が容器の外から境界線を楽しむことができるで好ましいが、透明性が強力でないものでも適した充満をこの場合には容器からスプレーなどの油によりスプレッド食品をすくい取るとさなどに層の断面像などを楽しむことができる。

多層とは、層が少くとも 2 以上あることをいい、層数が多くなってひとつの層巾が狭くなるとしま良極となる。層の方向は一般的にはたて方向または斜め方向であるが水平方向も差し支えない。

以上述べた本発明のスプレッド食品を製造するには、充填時の粘度が約 5 万～15 万 cgs のビーナツバターと約 10 万～20 万 cgs の他の油性スプレッドとを容器に多層に充填すればよい。ビーナツバターの粘度が約 5 万 cgs より低くなても、また他の油性スプレッドの粘度が約 10 万 cgs より低くなても、さらにはビーナツバターの粘度が約 15 万 cgs を越えても、また他の油性スプレッドの粘度が約 20 万 cgs を越えても、ビーナツバターと他の油性スプレッドのなじみが悪くなるためか両層の境界線が不規則な凹凸を示すようになるからである。両者の粘度の調整は、原料の選択・配合の調整もしくは充填時の品温の調節によってはかればよい。一般に充填時の品温を下げるほど粘度は急激に高まり、品温を上げると粘度は急激に低くなる。ビーナツバターと他の油性スプレ

ドに、本発明のスプレッド食品の製造方法によれば、両者の粘度の調整により容易に目的とする食品を製造することができる。

なお、このスプレッド食品を製造するに際して、ビーナツバターの甘味料を砂糖の甘味に換算して原料中 0～5%、食塩を 0.5～1.5% の各範囲内とし、さらに他の油性スプレッドの甘味料を砂糖に換算して原料中 2.5～4.5% の範囲内とすると、ビーナツバターと油性スプレッドの他の調和もよいものとなる。

次に、本発明の効果を示す試験例を説明する。試験例

ガラス製の円筒形容器(内径約 6 cm、高さ約 8 cm)に、ビーナツバター用 6 層、他の油性スプレッド用 6 層から成る計 12 層の吐出孔つきノズルを挿入して充填を開始、充填しつつ逐次垂直面ノズルを引き抜きながらビーナツバター 100 g、他の油性スプレッド 60 g 合計 200 g を容器内に充填した。

(1) その品、他の油性スプレッドの充填時の粘

度とを容器に多層に充填するには、例えば、ビーナツバター用の吐出孔と他の油性スプレッド用の吐出孔とが各々最低 1 個以上下方に開口している多孔ノズルを容器内底部近くに挿入し充填しながら順次容器から引き抜くようにすればよい。引き抜く方向を垂直上向きとすれば層は逆って境界線はたて方向のものとなり、斜め上向きとすれば、境界線は斜め上向きのものとなる。さらに垂直上向きとすると共にノズルに一定の正逆回転を与えると、境界線は凹凸形状が反復性をもった蛇行模様を形成する。

(5) 発明の効果

以上、本発明のスプレッド食品により、外観上も見映えのよい、ビーナツバターと他の油性スプレッドから成る複層の食品を実現することができる。また、本発明のスプレッド食品においては、ビーナツバターと隣接して層をなすスプレッドが油性であり水分が少ないと、製品保存中にこの水分がビーナツバター側に移行してビーナツバターの明るい色を暗褐色に変色させることもない。さら

度を 15 万 cgs (20 °C) と一定とし、ビーナツバター充填時の粘度をその品温を変えることにより種々変えて充填されてできる両層の境界線の状況を観察したところ第 1 表に示すとおりとなった。

第 1 表

(粘度の単位: 万 cgs)

ビーナツバターの粘度	1	3	5	7.5	10	12.5	15	17	20	25	30
境界線の状況	×	×	○	○	○	○	○	×	×	×	×

(2) また、ビーナツバターの充填時の粘度を 10 万 cgs (20 °C) と一定とし、他の油性スプレッド充填時の粘度をその品温を変えることにより種々変えて充填されてできる両層の境界線の状況を観察したところ第 2 表に示すとおりとなつた。

第2表

他の油性スプレッドの割合	3	5	8	10	12.5	15	17.5	20	22	25	27	30
境界線の状況	×	×	×	○	◎	◎	◎	○	×	×	×	×

註(1) 表中◎、○、×印は次のことを示す。

◎：容器の上端側及び下端側を除く中央部約5cm長において、縫は凸が殆んどなくほぼ直線状。

○：上記と同じ5cm長において、程度の凹部または凸部が1箇。

×：上記と同じ5cm長において、凹部または凸部が2箇以上であって、同一境界線上における形状の反復性及び隣接する境界線との相似性のいずれも見られない。

(2) ピーナツバター及び他の油性スプレッドは下記の原料配合のものを用いた。

対状に配列させたものを用いた。

上記の表から、ピーナツバターと他の油性スプレッドとを多層に充填したときに境界線が不規則な凹凸を示さないためには、充填時の粘度がピーナツバターは約5万～15万cpsであり、他の油性スプレッドは約10万～20万cpsであることが必要であることが理屈される。

(6) 実施例

他の油性スプレッドの原料配合は下記のものに変更し、またその充填時の粘度は15万cpsと一定とし、またピーナツバターの充填時の粘度は10万cpsと一定とした以外は試験例と同じ条件にして多層スプレッド食品を製造した。このものも層の境界線はほぼ直線状をしていた。

他の油性スプレッドの原料配合 (単位%)

ショートニング	45.0	レシチン	0.3
乳 脂	42.0	食・水溶性モノグリセリド	0.2
砂 粒	2.0		
乳 脂	1.0		

イ. ピーナツバター

ピーナツペースト	83.0 (単位%)
ショートニング	9.9
ぶどう糖	4.0
食 塩	1.0
脂肪酸モノグリセリド	2.1
合 計	100.0 (%)

ロ. 他の油性スプレッド

植物油脂	50.0
乳脂	7.0
砂 粒	25.0
乳 脂	5.0
全脂奶粉	13.0
レシチン	0.5
バニラエッセンス	0.1
合 計	100.0 (%)

(3) 充填ノズルは、直徑約3cmで、下端外側を
りに巾3cm長さ5cm(放射状方向の長さ)の
吐出孔12箇をピーナツバター用と他の油性
スプレッド用とが交互に間隔となるように設

全脂奶粉

合 計	100.0%
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実施例2

実施例1において充填ノズルを引き抜きながら充填するに際しそのノズルにその離心を中心とするゆるい右回り回転を与えたところ、ピーナツバターと他の油性スプレッドの境界線がラセン状を示す多層のスプレッド食品が得られ、その場合に上記境界線には不規則な凹凸は見られなかつた。

実施例3

実施例1において充填ノズルを引き抜きながら充填するに際しそのノズルに正逆の回転を与えたところ、ピーナツバターと他の油性スプレッドの境界線が直線状を示す多層のスプレッド食品が得られた。この直線状は形成するものが全てほぼ規則形でありリズム感のあるものであつた。

4. 図面の簡単な説明

図面の簡単な説明

図面は、ガラス製容器化を注目ナットバターと他の油性スプレッドとをたての方向に多層に充填したスプレッド食品の正面図をほぼ実寸サイズで示す

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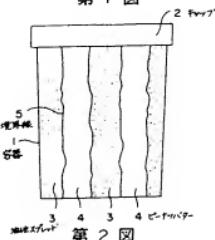
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ものであり、その内第1図は従来例を示し、また第2図は本発明の実施例を示す。

1…容器、2…キャップ、3…他の油性スプレー
ソード、4…ピーナツバター、5…境界線。

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第1図



第2図

